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ORIGINAL ARTICLES.

ANEURISMAL TUMOR OF THE RIGHT ALVEOLAR PROCESS AND VAULT OF THE MOUTH TREATED BY INJECTION.

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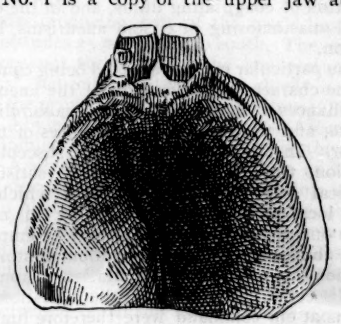
Mr. C. B. H., of Chicago, American, aged 26 years, occupation traveling salesman, was referred to me December 26, 1888, for counsel and treatment by Dr. M. Stout, of Chicago, with the following history: Some eighteen or twenty months previous to this examination the gentleman had submitted to the extraction of all his superior teeth, except the central incisors. The operation was performed under nitrous oxide gas; the mouth was badly bruised and lacerated on account of the difficulty in extracting the teeth. A few weeks afterwards he noticed a swelling upon the inner side of the right alveolar ridge, which continued to enlarge as the months went by, and prevented the making of the artificial denture, which he was anxious to have placed in his mouth. There was no pain or uncomfortable feeling about the tumor, except when engaged in vigorous exercise; at such times pulsation in the part would become very marked and disagreeable.

According to his own statement he had "consulted several dentists (?) in relation to the character of the swelling; some did not know what it was; one said it was an accumulation of pus, another that it was a '*watery* tumor,' and a third that it was a '*wind*,' and asked the privilege of letting it out." This very kind offer, however, was declined, much to the permanent benefit and longevity of our patient.

Examination of the mouth revealed the superior teeth all gone except the central incisors, and a pulsating tumor about one and one half inches in length, by one inch in width, egg-shaped in form, with the small end pointing forwards, and occupying the right side of the vault of the mouth, from the outer wall of the alveolar process, to the median line, and from the tuberosity of the maxilla forward to a line drawn through the cuspid region.

In character it was soft, fluctuating, compressible and with very marked pulsation. In color it was slightly deeper in tint than the surrounding mucous membrane Upon puncturing it with an exploring needle, a jet of arterial blood followed its withdrawal, and continued to spurt for about half a minute, when the hæmorrhage ceased.

The diagnosis was aneurismal tumor of the posterior palatine artery, with possible anastomosis with some branch of the superior maxillary artery, the result of injury in the extraction of the teeth. An operation was advised, and the gentleman agreed to report in about two months. Cast No. 1 is a copy of the upper jaw at this



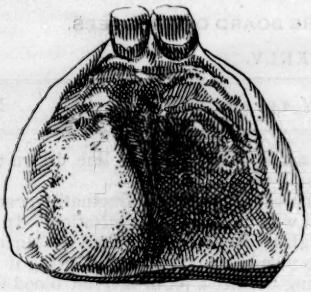
CAST 1.

period. Business engagements prevented his keeping this appointment, and when he next called to arrange for the operation, I was out of town on my summer vacation. He was also on vacation, and could not wait my return, and therefore sought other advice.

October 10, 1889, I saw him again, at which time he gave me the following additional history: That in July he had been operated upon for the removal of the tumor and had nearly died under the operation, from hæmorrhage, and was afterwards confined to his bed for two months, with blood-poisoning.

The cast which I now show you, No. 2, is a copy of his upper jaw taken on December 17, 1889, a few days before I operated upon him.

You will see by this that there was no improvement in the condition as described in the examination made a year previously, but that the tumor was larger.



CAST 2.

The surgical treatment of aneurisms is by ligating the artery near the cardiac or distal extremity of the sac, or both; by compression either instrumental or digital; by the introduction of foreign substances into the sac, like catgut, horse hair or fine iron or silver wire; by manipulation; by acupuncture; by galvanopuncture; by the injection of coagulating fluids, and in the case of small anastomosing or cirsoid aneurisms, by dissection.

The particular method adopted being controlled by the character and location of the aneurisms, the chances of danger to life, the possibilities of a cure, and the individual preferences of the operator. In all such cases, as are susceptible of ligation, this is by far the most satisfactory surgical procedure But in those which from their location cannot be reached by this method some one of the other means may be employed.

In the case under consideration treatment by ligation, compression, manipulation, acupuncture or dissection was out of the question; the means at our command were therefore limited to three methods: the introduction of foreign substances, like wire, etc., galvano-puncture, and injection.

Treatment by the introduction of foreign substances, either animal or metallic, seemed slow and unsatisfactory, and gave little hope of success, for I had been unable to find a single case on record of a cure by this means, while the dangers from embolism were great.

Galvano-puncture was considered too tedious an operation, from the fact that several would most likely be required to effect a cure, while the dangers from embolism and from hæmorrhage as a result of sloughing at the points of puncture, made it seem extremely hazardous. I therefore decided to treat the case by injection, though this method is by no means free from the dangers already enumerated. The injection method in aneurisms of large arteries is generally considered positively unsafe; and in those occurring in terminal branches of arteries, it has not met with much favor by the profession, chiefly for the reason that several fatal results from embolism were recorded soon after its introduction, and thus deterred many from giving it a trial in those cases which might be considered favorable.

The danger of this method in aneurisms connected with small arteries, it seems to me are not in the method itself, but in the kind, and strength of the coagulating fluids used.

The agents which have been suggested are numerous, among which are acetate of lead, acetic acid, iodine, ergotine, and the perchloride of iron. The perchloride has generally been given the preference, used in small quantities and weak solutions of 1 to 2 per cent.

The injection of solutions in the above quantity and strength, produce very slow coagulation, and when the clot is formed, it is soft and friable, as a consequence it is easily broken up, and floated away, giving rise to embolism in remote parts of the circulatory system, with all its accompanying dangers. The dangers in acupuncture, galvano-puncture, and the introduction of foreign substances into the sac, are for the same reasons equally great.

The perchloride of iron is a vigorous coagulent, and quite escharotic and antiseptic when used in full strength. A 1 or 2 per cent. solution is very mild in its styptic and coagulent qualities; is not escharotic, and has no value as an antiseptic.

What is needed in the treatment of this class of cases, is to produce a firm clot, instantaneously if possible, and to maintain it in an aseptic condition, without the dangers of sloughing or hæmorrhage.

In the perchloride solution of proper strength it would seem that we had all these requirements.

By the production of instantaneous and complete coagulation of the blood in aneurisms of this class and nevi, the dangers from embolism in remote parts of the body, would seem to be entirely overcome, and thus one great objection to this method removed; at least this was my thought upon the matter, and I determined to try it in this case, in preference to the other methods which might have been chosen.

In order to produce a complete and firm coagulum, instantaneously, it would be necessary to use a solution of much greater strength, than had been previously recommended.

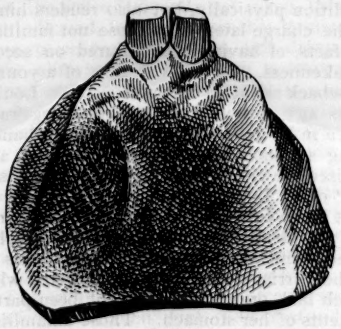
From the size of the tumor, I concluded that in all probability it contained from one to one and a half ounces of blood, and that the introduction of five minims of the following solution, perchloride of iron one part, water four parts, would not be sufficiently escharotic to do any mischief, when diluted with this quantity of blood.

On December 22, 1889, I injected into the tumor five minims of the above solution, which produced instantaneous coagulation, making the tumor feel as firm as a fibroma; considerable pain followed the injection, but this gradually subsided after a few minutes, but he complained for some hours of a strange fullness of the right side of the head. On withdrawing the hypodermic needle, a little oozing occurred which immediately discolored the mucous membrane for a little distance around the puncture made by the needle. No other unpleasant symptoms followed.

December 28, the mucous membrane, at the point punctured by the needle, sloughed, leaving an opening into the sac, about the size of a silver half dime, exposing the hard clot. There was not the slightest hæmorrhage, but considerable anxiety was felt, for fear of such an occurrence.

Tiersch's antiseptic solution was constantly used as a mouth wash during the whole progress of the case, and after the slough occurred, the sac was syringed with the same solution at short intervals, day and night.

December 31, the clot was broken up and removed, when it was found that the aneurism also occupied the antrum of highmore, and had produced absorption of the palatine process, of the superior maxillary bone, and the nasal wall of the antrum, leaving a large opening into the nasal fossa. The case progressed without a single drawback from this time onward. The opening into the antrum and floor of the nasal fossa, finally closed. There has been no recurrence, and the patient considers himself perfectly well.



CAST 3.

Cast No. 3, shows his present condition.

Remarks.—The sloughing of the mucous membrane at the point of puncture, proves that the strength of the solution was too great for absolute safety, and should I be called upon to treat another case of this class, I should not feel warranted in using a solution stronger than one in six or eight parts of water. This, I think, would produce the desired results, without the dangers of causing a slough, and possible hæmorrhage.

No. 9 Jackson St., Corner Michigan Boulevard.

COFFEE, ITS USE AND ABUSE.

Read at the Louisville Meeting of the Mississippi Valley Medical Association, October 13, 1890.

BY I. N. LOVE, M.D.,

OF ST. LOUIS.

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I shall not attempt to present a history of the coffee plant, but rather give a few of the virtues it possesses, and draw attention to the fact that the commonplace is often overlooked in our desire to discover that which is new, striking and sensational. I recall a remark that I heard made a year or two ago by a very worthy but somewhat censorious member of our profession, to the effect that he did not propose to attempt to address the profession unless he had something absolutely original to offer. In this connection, I venture this thought: that which is good and true will bear repetition, and it is rarely original.

In Southern Abyssinia the coffee plant grows wild in profusion, and has been in use from very ancient times. The name is probably taken from Koffa, the name of a district south of Abyssinia. The coffee-producing belt of the world lies between latitudes 25 north and 30 south. The coffee plant does not thrive where the temperature is below 55°, hence the cultivation is chiefly in the tropics, the principal countries being Brazil, Java, Ceylon, Abyssinia, West Indies, Central America, Peru, Bolivia, etc. It would be interesting to present a succinct history of the plant and the gradual development of its virtues during ages past, but that is not the purpose of this short paper. The fact that there is imported annually into the United States nearly 800,000,000 lbs. of coffee, indicates its importance as an article of diet. It is an odd and interesting fact that the active principle of all the domestic beverages of the world is practically the same, viz.: caffeine in coffee, theine in tea, theobroma in cocoa.

The best coffee of commerce is Mocha, the next in order being Java. A mixture of equal parts of the two is really the best and most agreeable in flavor. The coffee, in order to be in form for use, must be roasted, and much depends upon its treatment. In order to secure an infusion of roasted coffee in its perfection, it should be boiled in a closed vessel carefully, so as not to be overdone, only the amount necessary to be immediately used; by this means the rich aroma of the coffee, which gives it its most delicious flavor, is preserved.

I venture the opinion, that there is no beverage on the earth to-day which, used in moderation, expresses more comfort, contentment and calmness to the cerebral centres, than coffee; but in

excess, it is undoubtedly most dangerous. I doubt if the victims of alcoholic excess are as numerous as those who over-indulge in coffee. Alcohol has two advantages in that it is a food and its excessive use is disgraceful. The infusion of coffee in proper quantities aids digestion, and is a safe cerebro-spinal stimulant which is not followed by perceptible reaction. Liebig drew attention first to the fact that this beverage contains the elements which stimulate the flow of bile. It is a decided laxative, a pronounced diuretic. The fact that the coffee belt of the world is also the "bilious belt" and the malarial belt, as well as the field where noxious germs and suppurative processes do most abound, is evidence of the fitness of things. No one better than the denizens of the hot regions of the world, know the value of coffee to open up the secretions which have been checked by excessive heat or the malarial influence. They know well, and have known for centuries, that which has recently been receiving much attention in the medical world, particularly in Germany, viz.: the antiseptic properties of coffee.

Apropos to this point, Carl Luderitz, in the *Zeitschrift für Hygiene*, has recently presented an interesting report concerning the influence of infusions of coffee on microörganisms, of which the *New York Medical Journal* of May 3, 1890, presents a brief epitome as follows:

Luderitz details a careful series of experiments in which he determined the influence of coffee infusions of different strength (varying from 10 to 30 per cent.) upon the growth of various forms of pathogenic and non-pathogenic microörganisms. The coffee used in these experiments was roasted Java, and the infusion was made by adding from ten to thirty parts of coffee by weight to seventy or ninety parts of boiling hot water. The coffee, freshly roasted and ground fine, was covered with boiling water, and the infusion thus prepared was placed in a closed flask in a water-bath for about ten minutes, and was then filtered through a sterilized filter. This infusion was used in part for making gelatin and in part directly. Where nutrient gelatin was made with this as a menstruum, it was inoculated with various forms of fungi and other microörganisms, to determine the possibility of their growth in such a medium. In other cases the organisms were added directly to the infusion of varying strength, and after different periods of time inoculations were made from the infusions into other nutrient media. Luderitz found that the forms of fungi experimented with showed more or less growth in the coffee gelatin, but the abundance of growth was in many cases distinctly less than in other media. The other microörganisms he used for his experiments were the staphylococcus pyogenes aureus, the streptococcus erysipelatosus, the typhoid bacillus, the spirillum of cholera Asiatica, the bacillus anthracis, the bacillus prodigiosus and the proteus vulgaris. All these forms of microörganisms were greatly influenced in their life and growth by exposure to the infusions of coffee, but some were far more susceptible than others. The bacillus prodigiosus was totally destroyed only after exposure in a 10 per cent. infusion for four days, or in a 30 per cent. infusion for one day. The typhoid bacillus was completely destroyed after exposure in a 5 per cent. infusion for three days, in a 10 per cent. infusion for from one to three days, or in a 30 per cent. infusion for one or two days. The proteus vulgaris was killed after an exposure for four days in a 10 per cent. infusion. The staphylococcus pyogenes aureus was destroyed only after an exposure for six days in a 10 per cent. infusion, and for three days in a 30 per cent. infusion. The streptococcus erysipelatosus was destroyed after an exposure of one day in a 10 per cent. infusion. The bacillus of Asiatic cholera was destroyed in a 1 per cent. infusion after seven hours' exposure, in a 5 per cent. infusion after four hours, and in a 30 per cent. infusion after two hours. The bacillus anthracis was destroyed in a 10 per cent. infusion after three hours, and in a 30 per cent. infusion after two hours. The spores of the anthrax bacillus were only destroyed, for the most part, after three weeks' exposure in 20 and 30 per cent. infusions.

Aside from these experiments, others were made with decomposing meat bouillon, which was swarming with various forms of microörganisms. The results obtained from these showed that while the viability of the spores contained in the fluid was greatly diminished after a short exposure, it was not completely destroyed until after an exposure of many days. The cholera spirillum was by far the most susceptible of the organisms used in the experiments, and next to it stood the anthrax bacillus without spores.

At this moment a recollection of the fact comes to my mind that Dr. C. H. Hughes, of St. Louis, not less than fifteen years ago, drew attention to the antiseptic properties of coffee. Since, however, the grand moguls of Germania have taken snuff on the coffee question, undoubtedly the Germaniacs of science on this side of the Atlantic will all sneeze simultaneously.

The fact that coffee blunts sensation and increases secretion, would suggest that we educate the laity in the direction of at once giving the victims of accident a good cup of hot coffee, rather than the usually over-stiff whisky toddy, which in many cases, given in excess as it is, places the individual not only in an unfavorable condition physically, but also renders him liable to the charge later, from those not familiar with the facts, of having been injured on account of drunkenness. I recall the case of a young lady horseback riding in the suburbs of St. Louis some years ago, thrown from her horse, leg fractured, taken in by good Samaritans close at hand. On being summoned, I at once responded, and recognized the victim as being one of the "swellest set" of St. Louis' best society. I placed the patient in my carriage and removed her to her home. She was dead drunk, and before we reached her home, there was not a space three inches square in the carriage which was not covered with that which had, prior to the accident, been part of the contents of her stomach. Those unfamiliar with the fact of her having been filled to the brim with whisky by the good Samaritans who took her in, might have seriously reflected upon her character. A good cup of black coffee would have done her better service and risked her character less. So to the public we would say, give to those who have been injured a good cup of coffee in the name of humanity, but no whisky.

The custom which prevails in New Orleans, and generally through the South, of taking a cup of strong black coffee in the early morning, is an

intelligent one. The people of those malarious regions have long since demonstrated the fact that the custom referred to is of great advantage as a prophylactic. The individual experience of the writer for five or six years past, is strongly in favor of the taking of a liberal cup of black coffee without cream or sugar, sandwiched in between two glasses of hot water, a few minutes before rising every morning, at least one hour before breakfast. The various secretions are stimulated; the nervous force is aroused; an hour later, a hearty meal is enjoyed and the day's labor is commenced favorably, no matter how the duties of the day and night preceding may have drawn upon the physique. Another cup of coffee at four in the afternoon is sufficient to keep the energies unflagged for many hours thereafter. Taken in this manner, the full effect is secured; the stimulant devotes itself strictly to business, none of it is lost, and if the proper diet be taken at the proper times between (and the ideal diet for those who make large drafts upon their nervous systems and expect to have them honored, is hot milk) if the above regimen be followed and accompanied by at least eight hours sleep out of every twenty-four hours, the capacity for work is almost unlimited. How many of our patients who are the victims of disease, are ever consulted as to whether they have been accustomed to the habitual use of coffee, or not? Take, for instance, typhoid fever; a long seige of suffering; a racked and wrecked nervous system; the chances largely in favor of the patient having been an habitual drinker of coffee, but whether so or not, the coffee is usually not given, though strongly indicated, for the reason that it sustains and supports weary, worn nerves, aids digestion, keeps the alimentary canal, which is swarming with germs and putrefactive material, in a more or less antiseptic condition (it has previously been shown that coffee is peculiarly destructive to the typhoid bacillus), helps to gently open the sewers of the system, being as it is a diuretic, a stimulator of the bile flow and other secretions, allays the sense of fatigue and lessens tissue waste, braces up the heart's action and raises arterial tension. We all know that to prevent a chill, nothing is superior to a cup of strong black coffee. As an antagonist to opium narcosis, strong black coffee stands preëminent. This brief and disjointed paper would be unfinished unless a reference were make to the injury likely to follow the excessive use of coffee. In excess, it disorders digestion, removes the desire for food, creates an indisposition to sleep, excites headache, vertigo, mental confusion and disturbed heart action.

In this connection I recall the case of Mrs. S., whom I was called to see in consultation some miles from St. Louis about three years ago. A mother of five children all born within eight years, one or more of them sick half the time from the time of their birth. Mother conscientious and ever alert to her duty, suddenly taken down with heart trouble and such nervous symptoms as to apparently imperil life. Upon examination, I discovered an almost bloodless woman with a heart beating irregularly but so fast as to be almost beyond counting. A restless, hunted down expression of face and physique; no fever; an utter inability to sleep; no appetite for weeks past. The history which I soon elicited demonstrated the fact, which had been overlooked by her attendant, but which I suspected from seeing a coffee pot upon the table by the bedside, viz., that the mother in order to bear up under the burdens placed upon her, had been for six months absolutely living upon black coffee. The desire for food or ability to digest it had long since gone. The blood had become impoverished from lack of sustenance. Like the indiscreet owner of the thoroughbred roadster, she had been constantly feeding with the whip instead of oats. Her cerebro-spinal centres, the acceleratory nerves of her heart, would have soon been whipped to the point of exhaustion. Opiates and digitalis, whisky and pre-digested milk, good sleep, a check rein upon her circulatory organ, oats instead of the whip, in the form of nutrition easy to assimilate, gradually brought the patient around to a condition of health. It may not be uninteresting to state that this excellent woman, although a coffee drunkard, was a member of the local Temperance Union.

After years of extended observation and pronounced personal experience I feel justified in announcing:

1. The world has in the infusion of coffee, one of its most valuable beverages.

2. As a prompt diffusible stimulant either by the stomach or by injection into the rectum, it is in all cases of shock, preferable to alcohol.

3. It is antagonistic to malaria and specially destructive to the typhoid bacillus and cholera germ, and for this reason it is an admirable remedial agent in these conditions, both as a direct stimulant, an antiseptic and an encourager of elimination.

4. One of its chief advantages in health and disease is in the fact that it aids in the securement of that psychical satisfaction which is conducive to hope, comfort, good digestion, great power of resistance and rapid recuperation.

5. In season, it supports, tides over dangers, helps the appropriative powers of the system, whips up the flagging energies, enhances the endurance, but is in no sense a food, and for these reasons and many others, it should be used temperately, as should all of nature's benign gifts.

6. In excess, it is even more dangerous than alcohol, for it is not, like the latter, a nutrient, nor is the effect of its excessive use so apparent or unrespectable.

A STUDY OF STERILITY, ITS CAUSES AND TREATMENT.

Being an Essay which received the First Prize of the Alumni Association of the College of Physicians and Surgeons, Baltimore.

BY THOS. W. KAY, M.D.,
OF SCRANTON, PA.

(*Continued from page 184.*)

CAUSES.

1. Non-production.—Non-production of healthy ova and spermatozoa may be caused by (*a*) absence, non-development or malposition of the genital glands; (*b*) inflammatory troubles producing atrophy or destruction of those organs; (*c*) tumors or new growths affecting the nutrition of, or directly invading, the gland substance; and (*d*) all influences which affect the glands indirectly by altering the general condition of the body.

In all barren marriages where symptoms of uterine disease are not well pronounced, we should first make a microscopical examination of the spermatic fluid. This can be easily obtained by withdrawal of the organ as orgasm approaches, or by collecting the fluid, by means of a small syringe, from the vagina after the act has been completed. The best method, however, is the use of a condum during coitus.

Male.—The quantity of the seminal fluid depends on the size of the testes and the habits and physical condition of the male. Sims places the average quantity at about 2 drachms. It is not the quantity, however, but the quality, that concerns the physician, for though there may be a normal quantity of fluid discharged, the spermatozoa may be entirely absent—azoospermia.

Should there be no discharge—aspermia—it is useless to look for spermatozoa, but they may exist in large quantities and in a perfectly healthy condition when only a small quantity of fluid is discharged. Either of the above conditions may be congenital or acquired. The congenital variety, as a rule, is permanent, but the acquired form is either permanent or temporary.

(*a.*) In the congenital variety there is an absence or imperfect development of the testes, which prevents the production of the spermatic fluid. The absence of one testis—monorchism—is of little moment, but the absence of both testes from the scrotum—cryptorchidism—generally indicates sterility. This, though, is not always the case, for one or both testes may exist in the abdominal cavity and be in a healthy condition.

(*b.*) The most common cause of the acquired form is orchitis, due to external injury, mumps, gonorrhœa, syphilis, or other troubles in which an atrophy of the glandular elements is caused by the inflammatory process.

(*c.*) Hernia, hydrocele, varicocele, and all benign tumors disturb the nutrition of the testes by pressure or by dragging on the blood-vessels, and thus produce atrophy. Cystic diseases, tubercle and malignant tumors destroy the testis by a direct invasion of its glandular structure.

(*d.*) All fevers and inflammatory or wasting diseases affect the testis temporarily by impairing the general health. The sterility due to excessive venery, masturbation, and affections of the nervous system, is usually temporary, but may become permanent through organic changes taking place in the testes. Heredity, consanguinity, and many other agencies affect the reproductive organs of the male, but in exactly the same way in which they affect those of the female. At what time senile sterility is established in the male is not definitely known, but as his development is less rapid than that of the female, so is his loss of power postponed till later in life. In temperate climates the reprocreative power may be established as early as the 14th year and be maintained, in persons of robust constitutions, as late as the 70th, 80th and 90th year.

Female.—(*a.*) The ovaries may be, one or both, congenitally absent or imperfectly developed. The absence of one is of little importance, for the other, if healthy, is sufficient to furnish ova for impregnation.

Congenital absence or defect of both ovaries is generally accompanied by other abnormal conditions of both the internal and external organs of generation. Many interesting cases of this kind are found in all works on gynecology. Prolapse of the ovaries may affect their nutrition and set up inflammatory changes which result in atrophy and destruction of the Graafian follicles.

(*b.*) Aristotle seems to have been the first author to point out the fact that early marriages are a frequent cause of sterility, and the statistics collected by Duncan and Kisch show conclusively that not only is sterility more frequent, but the birth of the first child is postponed longer in those marriages where the woman is 15 to 19 years of age than where she is 20 to 24 years of age. This is due to inflammatory changes caused by injury during coitus or at childbirth, to imperfectly developed genital organs. The researches of Slavjansky have shown that inflammation, with subsequent atrophy of the Graafian follicles, may occur in rickets, scrofula, tuberculosis, pneumonia, typhoid fever, and all inflammatory and wasting diseases. In both acute and chronic ovaritis there may be an absorption of the follicular contents, followed by a collapse and adhesion of the follicular walls, which results in atrophy of the ovaries. It is in a different way that pelvic peritonitis acts. Here, the inflammatory products thrown out contract, and both dislocate and compress the ovaries so as to disturb their blood supply. Syphilis causes atrophy, directly, by affecting the ovaries, and indirectly, by setting up peritoneal inflammation.

(*c*.) All new growths of the ovaries—cystic (follicular, multilocular, dermoid, papillary and myxo-polypoid), and solid (papilloma, fibroma, fibromyxoma, sarcoma, carcinoma and enchondroma) induce sterility by destroying the structure of or producing atrophy of the ovaries. As long, however, as a healthy portion of the ovary remains, conception is possible. Schröder took advantage of this in operating, and would always leave a piece of healthy ovary when it was possible. The possibility of spayed sows getting with pig has long been known to stock-raisers, and I have seen several examples of it in my own neighborhood. Schatz reported a case where a young woman of 20, on whom double ovariotomy had been performed, conceived. In all of these cases a part of the ovary must have been left, or it may be that a supernumerary or accessory ovary existed, as in cases reported by Biegel, Klebs, Olshausen, Winckel and others. In the female, as in the male, varicocele may exist, about the organs of Rosenmüller, and produce atrophic changes by disturbing the circulation of the ovaries, but this affection is exceedingly rare.

(*d*.) In females suffering from diabetes, anæmia, chlorosis, and chronic affections of the nervous system, conception is rare, because of lack of sufficient energy to produce healthy ova. It is probably in the same way that the excessive or long continued use of alcoholic stimulants, opiates and other drugs prevent conception. The causative influence of obesity in producing sterility is very doubtful. It does not prevent the production of healthy ova, but indicates a lack of vigor and a sluggish condition of the general system unfavorable to ovulation. The ova are discharged periodically about once a month, and it is about that time that impregnation is most apt to occur. Of 248 cases, in which the time of copulation was definitely known, Hasler found that conception took place in 86 per cent. during the first ten days after the cessation of the menstrual flow. Capellman advises sexual abstinence for fourteen days after the cessation of, and three or four days before the appearance of the menstrual flow, if one desires to avoid conception. The Jews, the most prolific of all people, allow five days for the menstrual flow and to this add seven days, making in all twelve days, from the first appearance of the menses, during which coitus is forbidden.

The season of the year also affects conception, and we find it occurring much more readily in spring and summer than in autumn and winter. Haycroft, who has carefully studied the subject, finds that in Scotland the number of women who conceive increases with the rise of temperature.

The quantity and quality of the food materially affects conception, it being a well known fact that more children are born during years of plenty than during famines. Women in moderate circumstances, however, are more prolific than those who live in luxury and idleness. Hensen points out the fact that melons and cucumbers are more productive when raised in the shade and furnished with moisture than when exposed to the sun and a dry heat, and argues that women are affected, to a certain extent, by the same causes.

We saw that this was so when speaking of food and temperatures, and it is even more noticeable in the lower animals than it is in man. Pigeons are much more prolific when well housed and liberally fed than when they are allowed to look out for themselves. Indoor confinement or change of long established habits will tend to cause sterility in both the lower animals and in man. All showmen know that wild animals are remarkably unproductive when deprived of their accustomed freedom.

In France it has been shown that of eggs laid by uncooped hens only 20 per cent. are sterile, but this figure rises to 60 per cent. when they are closely confined. Darwin calls attention to the fact that mares rarely get in foal just after being taken from the stable and turned to pasture.

In what way consanguinity acts in causing sterility is not known, but it is a common cause in both the lower animals and man. Interbreeding of stock will cause the most improved breeds to degenerate in a very short time, and in families we see the same result, the progeny becoming sterile, deformed or mentally deficient. Mitchell points out the fact that this can be partly averted by good food and hygienic surroundings.

Galton, who has studied the question of heredity in all of its bearings, more thoroughly than any one else, finds that it is a potent factor in producing sterility. In England, where only-child sterility is as frequent as one in every thirteen marriages, Susell finds heredity one of its chief causes. The absence of menstruation has been given by some authors as a cause of sterility, but this cannot be, for it only indicates a condition of the ovaries unfavorable for ovulation, and should be considered as a symptom. When it exists up to the 20th year, it is usually a sign of non-development or atrophy of some of the internal organs of generation. From the forty-sixth to the fiftieth year it usually becomes permanently established and indicates the presence of senile sterility. The menses may also be arrested by catching cold, by fright, or by any great physical or mental excitement, and generally indicates a condition unfavorable for conception.

2. *Non-union.*—Non union of healthy ova and spermatozoa may be caused by (*a*) absence, stenosis, atresia or dilatation of any part of the course traversed by the human germs; (*b*) by diseased conditions of the passages which tend to impair the vitality of either ova or spermatozoa; (*c*) by artificial means employed to prevent conception; (*d*) by all influences tending to hasten, prevent or retard orgasm.

Male.—(*a.*) The possible existence of the ovaries, with the absence or imperfect development of one or all of the remaining internal organs of generation—those developed from the Wolffian bodies and the conduits of Müller—is well known, and it is but reasonable to suppose that the corresponding portions of the male genital tract—the ducts from the testes to the urethra—can also be absent or undeveloped while the testes are present. Such a condition must prevent the entrance of semen into the urethra.

Dunley found that in old age an obliteration of the ducts took place, probably before the testes ceased to generate spermatozoa. Pressure from tumors of the cord may also cause occlusion of the ducts. Epispadias, hypospadias and urethral fistula, unless situated near the glans penis, will allow the escape of the semen before it enters the vagina, and in those cases where it is deposited in the vagina it fails to be ejaculated against the cervix.

Stricture of the urethra is a very common cause of sterility. When narrow and situated in the anterior portion of the urethra, it obstructs the canal during erection so as to dam up the semen till the organ becomes flaccid, when it gradually oozes out. Should the stricture be situated far back, a regurgitation of the fluid may take place into the bladder, and be passed only as the urine is voided. When a slight stricture is present, impregnation may be affected by a change in the normal spiral direction of the urethra. This, as a rule, twists from right to left, as can be seen when passing urine from a healthy urethra, and it can also be demonstrated by passing a large olivary bougie well back into the canal and withdrawing it by a small thread attached to its end. In connection with this it is interesting to note what Courty says, in speaking of the "arbor vitæ" of the cervical canal. "The posterior tree," says he, "deviates to the left in proportion as it approaches the superior orifice. The anterior tree is, on the contrary, directed towards the right." It will be observed, then, that when the meatus urinarius is applied to the external os uteri, the spiral is continuous to the cavity of the uterus. Phimosis and stenosis of the meatus urinarius have the same effect as stricture, and a too large meatus acts in the same way as hypospadias.

(*b.*) Levy has shown that catarrhal secretions, when containing many pus corpuscles and much epithelial detritus, destroy the vitality of the spermatozoa in a very short time, but it is not probable that urethritis, simple or specific, will directly cause sterility in many cases, as it is such a short time in contact with the spermatic fluid. I recall a case in my own practice in which impregnation and gonorrhœal infection, in all probability, took place from the same individual at the same time.

(*c.*) Little need be said about the artificial means used by the male to prevent conception. The practice of "withdrawing" as orgasm approaches and the use of the condum are only too well known to all classes, both married and single.

In some parts of France and Syria, the prostitutes adopt a practice not generally known in America. It consists in tightly compressing the male urethra in front of the prostate, as orgasm approaches, so as to cause a regurgitation of semen into the bladder.

(*d.*) Many men of excitable dispositions, when first beginning to gratify the sexual appetite, are unable to control themselves and have a premature emission, sometimes even before entrance into the vagina has been gained. One individual under my care, who has since married and begat children, would have a seminal discharge as soon as his limbs came in contact with those of a female, even when sitting at meals.

Different neuroses of the genital tract may retard or prevent orgasm, and in one case which came to my notice I had reason to believe that spasmodic stricture of the urethra caused seminal regurgitation into the bladder. These neuroses are found in persons who have been addicted to excessive venery or to masturbation, and in those who have suffered from frequent or long-continued nocturnal emissions. In all debilitated individuals, from any cause whatever, or in those suffering from affections of the nervous system, the reflex centres governing the ejaculatory act may lose their excitability, so that, though erection takes place, there will be no discharge of semen. It is a not uncommon complaint of sterile women that they feel no discharge from the man during coitus. Non-erection prevents orgasm, and this may be caused by physical or mental affections. In some cases a too rapid flow of blood through the dorsal veins of the penis may bring this about.

Female.—(*a.*) Congenital defects, preventing the union of the ova and spermatozoa, may be found in any part of the female genital tract. Kisch calls attention to an abnormal thickness of the tunica albuginea as an obstacle to the escape of the ova, and Schenk has seen the cellular covering of the zona pellucida, as it escapes from the Graaffian follicle, act as an obstacle to the entrance of the spermatozoa, in rabbits.

Should the outer portions of the conduits of Müller, one or both, fail to develop, or their blind extremities neglect to open, there may be an entire absence or a rudimentary development of either or both of the tubes, or it may result in a closed termination where the fimbriated extremities should be. If an imperfect fusion of the lower portion of the conduits of Müller take place, it will result in some abnormal shape in the body of the uterus, but this does not prevent conception, nor does the imperfect condition arising from lack of development of one of the conduits of Müller.

The septum dividing the conduits may persist in all or any part of its course, and cause the formation of a double uterus or double vaginæ, but this is an impediment to impregnation only when it prevents copulation—conception being possible in either or both sides of the uterus. Should the conduits fail to develop or should they be arrested in their growth, the result will be an absence or malformation of both, either, or any part of the uterus or vagina, and any of these conditions may exist in females who are apparently well developed.

Examples of entire absence of the uterus are quite numerous, its diagnosis being easily made, on the living individual, by introducing the finger of one hand into the rectum and a probe, catheter, or finger of the other hand into the bladder.

Total or partial absence of the vagina may exist when the uterus is present or when it is absent, and this abnormal condition can be diagnosed in the same way as the abnormal conditions of the uterus. Should only the lower portion of the vagina be absent, it does not necessarily cause sterility, for the genital canal may open into the urinary or intestinal tracts, and there are cases of this kind on record where impregnation took place through the anus or the urethra. If, during fœtal development, the free edges of the hymen unite so as to entirely close the opening to the vagina, sterility must result. In all other anomalies of the hymen impregnation is possible, though the penis may not gain access to the vagina, and many cases of impregnation without penetration have been recorded, the spermatozoa having found their way through the opening into the cervix uteri. Congenital malformations of the vulva are also found occasionally, in which coitus is impossible. It may be abnormally small, or there may be adhesion of either the labiæ majoræ or the nymphæ. This union may be simply between the epithelial surfaces and easily overcome by traction, or it may be firm and require operative interference.

A small vagina, as a rule, is not a serious drawback to conception, and Kisch calls attention to the fact that small women with large husbands —presumably where the fit is tight—are more prolific than where the two are of the same size, or the woman is larger than the man. The above statement is borne out by my own observations. Congenital atresia of the cervical canal may exist in any part or all of its course. If situated only at the external os, as is most frequently the case, it usually consists of a continuation of the mucous membrane across that opening, and is easily remedied, but when more extensive it is difficult to treat. It usually attracts attention about puberty by the formation of a hæmatometra. Acquired atresia of the cervical canal is quite a common occurrence in women after they have passed the menopause, but here it is usually at the internal os, and is due to adhesion following degenerative changes.

Stenosis of the cervical canal may occur at either the external or internal os, and can be determined by the failure, in any uterus of normal position, to pass a good-sized uterine sound with ease. Olshausen calls attention to the fact that in women who bear their first child long after marriage a second birth follows close on the first, and he accounts for this by the stenosed os becoming larger after the child has been born. A lady of my acquaintance was barren for six years after her marriage, since which time she has given birth six times in nine years. Stenosis of the cervix is a common cause of sterility, not only in man but also in the lower animals. The Arabs use the hand and various hard instruments for dilating the cervical canal in mares that are unfruitful, and the Tyrolese incise the cervix of barren cows, in both cases, it is said, with successful results. The intra-vaginal portion of the cervix may be abnormally short or entirely absent, and in either case may cause sterility by preventing the application of the glans penis to the cervix uteri. Hypertrophy of the vaginal portion, if general, results in an elongation of the cervix, which is so great in some cases as to prevent coitus. This great length is exceedingly rare, but moderate elongation is quite common, and causes the cervix to be displaced as the seminal discharge takes place. If the hypertrophy is confined to one side it results in flexion, so that the os is tilted towards the vaginal wall during coitus. The conical and the nozzle-shaped cervices indicate an abnormal condition of the muscular structures, and probably prevent an active participation of that part of the uterus in the act of coition.

Where the cervix is torn or everted, sterility may be caused by the granulations closing the canal so as to prevent the passage of the spermatozoa, by the cervix allowing the escape of the semen after it has entered the canal, or by a catarrhal condition of the lining membrane causing a change in the normal secretion which is unfavorable to the life of the spermatozoa. A lacerated perineum also favors the escape of the semen and promotes secondary changes in the internal genital organs unfavorable for reproduction.

All uterine displacements, whether from a relaxed condition of the ligaments, from increased weight or external pressure, or from the contraction of inflammatory deposits, tend to prevent the entrance of semen to the ova.

In inversion of the uterus conception is necessarily impossible, and next to this versions are most certain to produce sterility, for not only is the cervix tilted out of the way but the os is covered by the vaginal wall as with a lid. In flexions the obstruction is in the canal at the

point of greatest convexity, but this is somewhat overcome by the congestion and erection taking place during coitus.

In prolapse, unless complete, there is nothing to prevent conception except the debilitated condition of the uterus and vagina, for the penis naturally pushes the organ back towards its normal position as it comes in contact with the cervix.

Hervey relates an interesting case of procidentia uteri where coitus took place through the dilated cervical canal and was followed by conception.

As the uterus becomes displaced it draws upon and displaces the tubes to a certain extent, and in this way the entrance of semen into their uterine extremities or of the ova into their fimbriated extremities may be retarded.

Displacements may also prevent conception by producing congestion and thickening of the lining membrane of both the uterus and the tubes so as to occlude these channels.

Contracted pelvis may also prevent the union of ova and spermatozoa by hindering coitus, and Hofmann has recorded an example of this kind where connection was impossible.

Atresia or stenosis of any part of the genital tract may be brought about by inflammatory trouble. All pelvic inflammations—salpingitis, ovaritis, peri-metritis, para-metritis, etc., properly included by Dr. Georges Apostoli under the term "salpingo-ovaritis"—originate almost always in the uterine mucous membrane and spread from there, through the tubes, to the surrounding organs where inflammatory products are thrown out, the contraction of which results in a dislocation of the uterus, of the ovaries, or of the tubes, or in a closure of the lumen of the tubes. The lining membrane of the tubes also becomes thickened and when closure takes place in two or more places so as to prevent the escape of the secretions into the uterine or peritoneal cavities there results a hæmato-, hydro-, or pyosalpinx.

Inflammation of the fimbriated extremities is quite common, and a dropsical condition may be found which causes an obstruction to the entrance of the ova into the tubes. In a case of laparotomy where I removed the right ovary the end of the tube was found inflamed, adherent to the ovary and closed, but it was healthy in all the rest of its course.

Tubercular disease may attack the tube, but the most common cause of salpingitis is an endometritis of gonorrhœal origin.

Acquired stenosis or atresia of the cervix may follow injuries during labor, or it may be due to syphilitic ulceration. In follicular endo-cervititis the canal may be entirely closed by the enlarged follicles, or ulceration and contraction may take place, thus causing atresia or stenosis and preventing the entrance of the semen.

The application of the sharp curette or of too strong medicinal applications may bring about the same results through cicatrization. Vaginal stenosis or atresia may be due to injuries during delivery or to syphilitic ulceration. Diphtheria may also cause sloughing and subsequent contraction. Simpson has seen simple vaginitis in children result in stenosis, due to an epithelial denudation with subsequent adhesion of the vaginal walls.

Vaginismus is a hyperæsthetic condition of the genitals, usually in virgins, causing a spasmodic contraction of the muscles of the perineum and vagina. It may be due to the small size of the vagina, to ulcers and fissures, to irritability of the hymen, and to organic disease of the uterus. Winckel reports cases in which subperitoneal fibroids seem to have been the cause of it, and Martin gives cold as one of the causes. In many cases self-abuse in childhood seems to have produced a congested and hyperæsthetic condition of the parts. This was the only cause that I could find in a married lady of nineteen, who had been married for nine months without ever having had connection. The hymen was elastic and normal in appearance, but when any attempt was made to introduce the finger into the vagina, intense pain was experienced and a splastic closure of the sphincter vaginæ would occur.

E. Davis reported an interesting case where he was sent for by a gentleman to separate his coachman and maid, and this could only be accomplished after chloroform had been administered to the woman. The liberated organ showed that there had been a constriction at the sphincter and one higher up in the vagina.

Hypertrophy or new growths of any of the external genitals may be an obstacle to coitus and thereby a cause of sterility.

The clitoris may be so developed as to prevent the access of the male to the female. Hyrtl states that in certain of the African tribes the size of the clitoris is so great that it is fastened to the perineum by rings so as to act as a protection to virginity. It was most likely on account of its size that circumcision was formerly practiced in certain parts of Egypt, and is now in parts of the Turkish dominions. Elephantiasis of the vulva is sometimes a cause of sterility, and hypertrophy of the nymphæ is said to be a frequent cause among the Hottentots, Bushmen and Abyssinians. A large accumulation of fat on the pubes and around the vulva is a not infrequent cause of sterility in persons of somewhat advanced age. Benign and malignant growths of the perineum will prevent the introduction of the penis into the vagina. In a girl of 16 years, from whom I removed a large angioma of the right labia majora, coitus would have been almost impossible.

The vagina may also be so obstructed as to prevent the union of the ova and spermatozoa. This may be caused by cysts, fibrous tumors,

polypi, and malignant tumors of the vagina; by pressure from ovarian or rectal tumors; or by cystocele, rectocele, or enterocele. Kisch reports a case in which a mass of hardened fæces in the rectum prevented coitus, and Schulze had a case in which the perineum of a 14 year old girl was developed to such an extent that the urine was passed with difficulty.

Tumors of the uterus may prevent conception by occluding either the os uteri or the openings of the tubes; they may also cause displacement of the ovaries and tubes, and when very large they may draw the uterus up so as to be out of reach of the glans penis. Indirectly uterine tumors may cause congestion or inflammation of the genital tract producing a condition unfavorable to the passage of the spermatozoa.

Hennig has recorded an interesting case in which hydrocele seems to have been the cause of sterility. Ovarian tumors may prevent the entrance of the spermatozoa either by causing compression or by drawing up the uterus, as in the case of large uterine tumors, and the same is true of tumors of the broad ligaments.

(*b.*) The normal vaginal secretion is slightly acid, and as stated before, unfavorable to the life of the spermatozoa, while that of the cervical canal is alkaline and will preserve their vitality for several days. Should, however, an inflammation of any part of the genital tract be set up, the spermatozoa, as has been shown by Lott, lose their vitality and die in a short time. This may be caused by vaginitis, endocervicitis, endometritis, or salpingitis. It is probable that the ova are also injured by coming in contact with diseased secretions, but on this point our knowledge is not definite.

There are many causes which may produce inflammation of the genital tract, but the most frequent of all is gonorrhœa. Nöggerath thinks that "latent gonorrhœa" is the cause in 90 per cent. of all cases of sterility. This figure seems too high, but it may be correct for the inhabitants of large cities.

Diseased conditions of the genital tract produce sterility more frequently by offering a mechanical obstruction to the entrance of the sperm, or by rendering the endometrium unfit for the implantation of the ova than by destroying the vitality of the germs.

Urinary and fæcal fistula of the genital tract prevent conception not only because of the sense of disgust connected with them, but also by producing a diseased condition of the mucous membrane.

(*c.*) Among the artificial means used by women to prevent conception may be mentioned sponges and tampons of cotton introduced into the vagina against the cervix. Small rubber caps are also used by placing in the vagina so as to fit as a cap over the cervix uteri and thus prevent the entrance of semen into the cervical canal. Other means are used to destroy the vitality of the spermatozoa. Among these may be mentioned injections of hot and cold water, and solutions of vinegar, alum, boracic acid and other medicinal substances. These methods are not as sure and much more injurious than the former. Abstinence from coitus for fourteen days after the last menstrual period and for three or four days before the appearance of the next flow is also a pretty safe practice, there being no ovum in the tract at that time.

The sexual desire in the male is much stronger than it is in the female, and in some females it is entirely absent. I have questioned many women on the subject and have frequently been told that it was months, and in some cases years after marriage before they could look on sexual intercourse with any feeling but disgust. This has been told me so often that I am inclined to think that the desire among the more highly educated women is educated and not natural. This also accounts for the fact that the first birth among the better classes is postponed longer than among the laboring classes. Most likely this is due to the development of the cerebrum at the expense of the cerebellum, and in time it is possible that the better class of Americans may become extinct, as have the cliff-dwellers, in whom, judging from their crania, the "organ of philoprogenitiveness" was poorly developed. Many women claim to be able to tell the exact time at which impregnation occurs, and there seems to be good grounds for accepting these statements as true. This is probably due to the perfect orgasm taking place in both parties at the same time. I have ascertained from many prostitutes that though they go through all the motions, when having intercourse, they allow orgasm to take place only when they are with their lovers. To this cause they ascribe the fact of not becoming pregnant and also of retaining their health for a long time. A married woman, whose husband is now suffering from syphilloderma, informs me that she has escaped contracting the disease by not allowing her passions to be aroused, and by bearing down and forcing out the seminal fluid after the act has been accomplished.

We see then that orgasm is more or less under the will-power, so that it can be hastened, retarded or kept in abeyance. It is also affected by all influences which debilitate the body or the nervous system. All agents then which tend to prevent complete and simultaneous orgasm in the two individuals are causes of sterility.

3. *Nonimplantation.*—Nonimplantation of the impregnated ovum in a healthy uterus may be due to disease of the tubes or of the uterus. After the ovum has become impregnated, most likely in the outer part of the tubes, it is carried by the current in the tubes, which is caused by the mo-

tion of the ciliated epithelium and which is probably assisted by a peristaltic action of the tubes, to the uterus. The uterus is also lined with ciliated epithelium whose motion is towards the tubes. This motion probably assists the entrance of the spermatozoa into the tubes and also acts as an impediment to the downward passage of the ovum. We have seen before that ovulation and menstruation are closely connected, so that by the time the ovum has reached the uterine cavity the endometrium has become swollen and its outer layer, at least, has been thrown off as detritus so as to offer a suitable nidus for the ovum. Here, if all is favorable, the impregnated ovum becomes attached and remains, undergoing development, till normal delivery takes place.

The frequent arrest of the ova in the tubes is shown by the number of cases of ectopic gestation. Mr. Tait claims that all cases of extra-uterine pregnancy are primarily of tubal origin. He admits the possibility of ovarian pregnancy, but denies that it is possible to have a case of primary abdominal pregnancy, and his assertions are borne out by recent investigations.

The arrest of the ovum in the tube may be caused by peritoneal or cellular inflammation, in which a constriction is brought about by the contraction of the inflammatory products; by pressure from tumors and new growths; by catarrh and swelling of the lining membrane, which may also affect the ciliary motion of the epithelial lining or the peristaltic motion of the tubes, and by pouches or dilatations in the tubes where the action of the current is lost.

The uterus may be sufficiently developed to receive the ovum and yet be unsuitable as a seat for future development. An arrest of growth may take place in fœtal life, before the uterus and vagina have become differentiated, giving the "uterus fœtalis," or its growth may be arrested in infancy while the cervix is very long and the body undeveloped, which results in "uterus infantilis," which, according to Biegel, is as frequent in cases of sterility as 4:155. Winckel has shown that fœtal inflammation is a frequent cause for non-development of the uterus. Atrophy of the uterus may also be acquired, as in the condition known as "primary atrophy," which occurs in girls before the period of puberty, when they suffer from wasting constitutional diseases, from anæmia or from chlorosis. In weak mothers, who have suffered from puerperal complications, it is not uncommon to find the menses suppressed and the uterine walls in a thin and flaccid condition. This is known as "puerperal atrophy" of the uterus. A condition of the uterus which is unfavorable for implantation or development of the ovum may be brought about by inflammation of the peritoneum and cellular tissue surrounding the uterus; by inflammation of the uterine parenchyma, or by inflammation of the endometrium.

Peri- and para-uterine inflammations may spread to the uterine tissue itself, but most frequently they contract and produce displacements of the uterus or bind it down so that when the ovum enlarges abortion follows. They may also prevent the return of the venous blood from the parenchyma of the uterus, which results in hyperplasia, with a subsequent catarrh of the endometrium. Hyperplasia may also be produced by disturbances of the circulation due to valvular disease of the heart, but it most frequently follows the first birth and is caused by subinvolution.

The constant excitement due to excessive venery results in hyperplasia, and we find flexions producing the same results, but by arresting the return of the venous blood.

In all cases of hyperplasia the endometrium is found congested and the secretion from its glands, and the glands of the cervix, much more profuse and watery than when in a normal condition. It is probably in this way that hyperplasia acts, for in many cases where the endometrium is not too much diseased pregnancy occurs in spite of the thickened uterine walls. Hyperplasia may run into chronic metritis where true inflammatory products are thrown out, and this will prevent the development of the ovum even though it become attached.

As stated above, the inflammations around or within the uterus may extend to the muscular tissue proper, in which condition we find hæmorrhages from the endometrium quite common, and in this way the ovum, after having reached the uterine cavity, may be washed out. The cavity of the uterus also becomes larger than normal so that there is less chance for the arrest of the ovum, the nutrition of the endometrium is more or less disturbed so that implantation of the ovum is not likely to take place, and the irritability of the nerve supply is favorable to uterine contraction, which frequently results in the expulsion of the ovum.

Inflammation of the endometrium is the most frequent, directly or indirectly, of all causes in producing sterility. We have seen how it may produce changes which prevent the entrance of or are injurious to the vitality of the spermatozoa.

We have also seen how most para- or peri-uterine inflammations start from the endometrium, and either affect the production of the ova or prevent their union with the spermatozoa. It now remains to consider how inflammations of the endometrium may prevent the implantation of or development of the impregnated ovum. In endometritis there is a production of many small round cells which are deposited between the glands, so that compression of the glands takes place and results in atrophy, not only of the glands, but also of the mucous membranes. With this the secretion becomes thin and watery and

its reaction is altered, while the ciliated epithelium is thrown off and replaced by cylindrical and polyhedral epithelium. This gives a smooth and slick condition to the endometrium so that the arrest of the ovum in the uterine cavity is very difficult, or, should it be arrested and become implanted, the atrophied condition of the mucous membrane with the alterations in the subjacent tissues will favor its early expulsion.

All intra-uterine growths, whether submucous fibroids, polypi, malignant or other tumors, prevent implantation or favor early abortion by altering the condition of the mucous membrane, or by offering a mechanical resistance to the development of the ovum.

Growths in the muscular tissue also alter the condition of the mucous membrane, but they act chiefly by preventing the uniform enlargement of the uterus as the ovum develops. The subserous growths may produce a condition closely resembling vaginismus and, if impregnation occur, the excitable condition of the nerves may cause early abortion. Intra-abdominal tumors may, if large, be an obstacle to the development of the ovum by directly compressing the uterus, as is sometimes seen in cases of multilocular ovarian cysts.

Cancerous tumors act by infiltrating the tissue of the uterus as well as by preventing copulation through the sense of disgust connected therewith. Should laceration of the cervix extend nearly up to the internal os it causes infiltration of the uterine tissue, which results in a loss of the relation between the ovum and uterus as development progresses, of which abortion is the consequence. Membranous dysmenorrhœa is in some cases a cause for the discharge of the ovum, but not in all cases, for many examples of child-bearing have been reported in women who were suffering from that trouble. Another cause for non-implantation of the ovum, which is probably more frequent than is generally supposed, is the application of the sharp curette or strong medicinal substances to the endometrium by unskilful hands. Their value, in suitable cases, when carefully applied, can not be over-estimated, but if the mucous membrane be destroyed in its entire thickness it must be replaced by cicatricial tissue unsuitable for the implantation of or nourishment of the ovum.

To enter into the subject of abortion would be rather foreign to the present subject, and it would require too much space for the present paper. Suffice to say that where habitual abortions occur, if neither the father nor the mother show any signs of syphilis, attention should at once be directed to the uterus. I have under my care now a lady who has aborted five times, and it was only in her last accident, the first in which I attended her, that a large uterine polypus was discovered. The trouble was supposed to be due to "habit."

(To be concluded.)

IN WHAT CLASS OF WOUNDS SHALL WE USE DRAINAGE? AND THE PRESENT POSITION OF ANTISEPTIC SURGERY.

Abstract of a paper read before the Gynæcological Society of Boston, October 9, 1890.

BY HENRY O. MARCY, A.M., M.D., L.L.D.,
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Dr. Marcy considered at length the subject viewed from the standpoint of the recent discussion at the International Medical Congress held in Berlin. He reviewed in detail the observations of Metschnikoff upon the power of the leucocytes to surround and destroy, to digest (so to speak), the bacteria when circumstances are favorable. It seemed to the writer quite too early to draw general deductions from these premises and declare that here the entire solution of the problem is found. There is every reason, however, to believe that this is an important discovery of a power which the organism brings to rescue it under favorable conditions from impending danger. The practical deduction of the lesson is that we seek to place the wound in such a condition that the phagocytes of Metschnikoff may be made the active allies of the surgeon. All this helps also, in a measure, to explain the successes which surgeons have obtained by means which seemed directly opposite in their methods of wound treatment.

Dr. Marcy carefully reviewed our present knowledge of the histological changes which go on in an aseptic wound, and showed that the so-called phagocytes had long been known to science as the leucocytes which, under favorable circumstances, develop into germinating tissue-cells with the newly formed capillary vessels, etc. A somewhat similar series of observations of equal interest and importance are seen to ensue about the ligature of an artery in continuity when the surrounding parts are maintained in an aseptic or healthy condition. Here repair takes place by the host of little workers leading up their forces in different directions. The blood-clots in the extremity of the occluded vessel undergo changes not unlike those already referred to in other locations, while the leucocytes speedily surround and shut in the material used as a ligature, forming a capsule. At an early period this may be lifted away from the thread, more or less distinctly as a layer, and little or no change has taken place in the constricting material, although this may differ very widely in character. Even when applied to the vessels of very young animals, after a considerable period, the silk ligature is comparatively unchanged. Often at the end of three or four weeks it may be found intact, although firmly shut in by a sheath of new connective-tissue cells.

When the tissues are held at rest, the same general condition may be observed, if silk-worm gut or silver wire has been used. After a period

of some weeks, the silk ligature may have completely disappeared, and the changes which have led up to this are traced in an invasion of leucocytes between the strands and fibres of the silk, slowly separating them and causing their disintegration. If these conditions are interfered with in a mechanical way, this process seems to be held in abeyance.

The cell changes which should go on in the development of connective tissue fail, and then the little army of workmen invade the surrounding tissues, and the processes, earlier called proliferating, ensue, and the constricting material is thrown off as a foreign body. When an aseptic animal ligature has been used, catgut or tendon, and the parts about maintained in a healthy state, the ligature material becomes invaded by leucocytes, which utilize it for their own development, causing it, little by little, to disappear. So marked is this process that an aseptic animal suture, introduced into various parts of a healthy young animal, may for a considerable period be traced by a line of newly-developed connective tissue, although not a single vestige of the original material remains. These processes have for a long time been recognized in a general way and accepted, and yet we are all familiar, almost equally so, with the reverse of the picture, where any considerable colony of micrococci develop in the line of a wound.

Here this process may be completely local; that is to say, the leucocytes surround and shut in the invading army with a wall of living granulation cells until, little by little, it is forced to surrender and a localised abscess is the sum total of damage. The most of us, however, who were surgeons of an earlier day recall the too common and, I am sorry to admit, even at present, not rare experience in the every-day work of many—the foul suppurating wounds and general systemic poisoning. In such wounds the feeble barriers of leucocytes, thrown up against an invading army, fail to protect the organization, and the much-dreaded "blood poisoning" supervenes.

If it may be accepted, in a general way, that the above observations are correct, let us use them as basic and fundamental from which to draw further conclusions. If we find in the so-called phagocytes of Metschnikoff the familiar leucocytes above mentioned, we certainly have, in a very considerable measure, an explanation of the vital resisting power of the individual organism. If, under favorable circumstance, these cannibalistic little workmen not alone surround, but actually eat up their enemies, we have the best of reasons for understanding why the comparatively few germs in the atmosphere of a healthy locality are far less dangerous to wounds than was earlier supposed. Again, too, we see that in the so-called surgically clean wound, that is a wound where great care is taken to exclude foreign material, where blood-clots are removed, and the comparatively uninjured clean-cut surfaces are closely approximated—the reparative processes go on steadily, and rapid recovery supervenes, although in a strict scientific sense the wound is not aseptic.

In wounds where the surrounding tissue is devitalized these favorable conditions are not maintained, and here the germination of bacteria goes on much as seen in laboratory culture experiments.

Dr. Marcy then reviewed at length the important contribution of Sir Joseph Lister, delivered before the Medical Congress in Berlin, and Mr. Tait's reply to the same holding, as usual, opposite views, he declaring that the whole basis of antiseptic surgery is, "an absolute and ludicrous logical error." Dr. Marcy closed his address with the conclusion, that the unbiased student must observe in the recent progress in wound treatment a fundamental truth based upon the repeated observation of abundant facts. This consists of three factors: 1. The condition of the patient, the so-called vital resistant power; 2. The bacterial infection, the seeding of the field; 3. The condition of the soil, the pabulum necessary for the growth of the direful harvest. Upon this tripod at present rests the scientific basis of wound treatment. There are many workers equally earnest, equally thoughtful. It is better they should make their observations as independent original investigators. Much profit comes from the results of such heroic workers, as Mr. Tait, Dr. Bantock, and many others we could mention. The recent teachings of those who advocate the so-called dry treatment of wounds convey another side view of the great fundamental truth of much value. Here primary union is prompt and there is little effusion which seems to require drainage. It will be noted that Sir Joseph Lister looks forward to the possible abandonment of drainage, which he has during the last three years greatly lessened. On the contrary, Mr. Tait, as may be inferred from his writings, elevates drainage to a most important factor of wound treatment, and at the late International Medical Congress, both he and Dr. Bantock predicted a greatly extended use of the drainage-tube. They disregard the bacterial infection, but insist upon the withdrawal of all material which could aid in its possible development.

The ideal of wound treatment is surely to restore the condition of the parts to as nearly their primal state as possible. If this can be assuredly aseptic, then there is no bacterium to remove; if surgically clean, with accurate coaptation of the sundered parts, then there is no material which needs removal, nothing to drain. If, as we have seen, the leucocytes go promptly to work under such favorable conditions, the first series of the repair processes takes place, which ends in a prompt

and speedy restoration. This should be effected under a dressing which will permit of the introduction of no foreign factorage. To this end Lister has unweariedly labored, for nearly a quarter of a century. The various antiseptic dressings, now so generally employed, have a value in wounds necessarily drained, which must be considered open to a possible infection, but in a wound that is closed without drainage they are unnecessary, expensive, and cumbersome. Lister's ideal protective varnish is found in the closure of the wound with iodoform collodion.

My last five years of experience in the treatment of aseptic wounds of every variety, closed in layers with buried tendon sutures and treated in no other way than by a protective layer of collodion, is cited in ample proof. Even in the major amputations, such wounds go on to a speedy repair without pain or œdema of the surrounding parts. Call the various methods adopted to secure the end obtained by whatever name you will, the great fundamental principles of antiseptic surgery, as enunciated by Sir Joseph Lister many years ago, rest upon a sure foundation, and the results in modern wound treatment are the marvel of our age.

From this brief review of well-known facts, it is obvious that the real object of drainage is not so much the removal of the serum, blood, and devitalized tissues, as it is to remove any possible bacterial infection which may have invaded the wound; for it is quite impossible to divide and rejoin tissues without the effusion of blood and serum, and in a greater or less degree devitalizing the adjacent structures. Since these are very important factors, it is of the first consideration on the part of the surgeon, that he minimize as much as possible these conditions, for the reason that they render it very probable that the introduction of bacterial *seed* into such a *soil* will be followed by direful results.

Is the present state of operative procedure sufficiently accurate to warrant the assurance that such complications are not to supervene? This is the question which must first be satisfactorily answered before we are in a position to determine at all positively when we are to use, if always, or not at all, the drainage-tube, in the hope thereby to remove the fermenting material, so dangerous if allowed to remain.

It is certainly clear that the experience of the last twenty years has been leading to the solution of this problem, until now it seems demonstrated beyond a doubt, that an *aseptic* wound may be made in *aseptic* tissues, and maintained aseptic until restoration is complete. If this is true, the *modus operandi* of modern wound treatment must be mastered as the ritual service of a higher religion, before the surgeon is competent to enter upon the serious responsibility of his office. If aseptic conditions are maintained, then we may safely conclude that the drainage of the wound will not be necessary, and if unnecessary, certainly undesirable. At the best the drainage-tube is a foreign body, and its presence in the wound prevents primary union of that portion of the tissues which enclose it. It keeps the wound, to a certain extent, an open one, and as such makes secondary infection so probable that the most careful antiseptic dressings are advised to absorb and disinfect secretions and prevent atmospheric contamination. In an aseptic wound, after the removal of the tube, the final closure of the tract is comparatively slow, and by granulation. These are well-recognized objections, and efforts have been made to overcome them by many ingenious designs.

If drainage is to be discontinued in aseptic wounds, it must be accepted that the greatest care should be exercised in leaving as little devitalized tissue as possible, and in evenly coaptating the divided parts. The wound should be clean and dry; the different layers of the tissues should be joined with as little injury as possible, and the external wound should be protected from infection. Irrigation should be employed with a minimum of sponging, and joining of the tissues by light, running buried animal sutures, preferably tendon. The skin is evenly coaptated by a similar suture, taken from within outward through the deeper layer only. Then the wound is sealed with a germ-proof layer of iodoform collodion reinforced by a few fibers of cotton. Such wounds go on rapidly to repair without œdema of the tissues, pain, or tenderness.

"Are all aseptic wounds to be thus treated? I unhesitatingly say yes, even to the major amputations; abdominal operations included."

As a matter of fact, I find in my last forty abdominal sections I have not once used drainage, and have noted no reason to regret not employing it.

The *seed* and the *soil*, and the varying conditions of each, must ever be kept in consideration. When in doubt of infection in a wound, especially when its character will be likely to be attended with an abundant albuminoid secretion, drain; but let the surgeon ever remember that the highest theoretic condition of wounds is their restoration, as nearly as possible, to the normal relation of the tissues, and their retention at rest in an aseptic condition. This, in a great majority of wounds, renders drainage not only unnecessary, but when applied, it will be a positive detriment and a source of danger. I am assured that the better knowledge of the conditions of wounds will restrict the use of the drainage-tube to septic wounds, and that operative wounds in aseptic tissues will be aseptically maintained by primary closure without drainage.

(For discussion see Society Proceedings.)

DEATH DURING CHLOROFORM ADMINISTRATION.

Read before the Medico-Legal Society of Chicago, Dec. 6, 1890.

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The case which I desire to report to-night is rather a notorious one, and I have concluded to report it at the request of the President, without preparation, because it is of great interest to the profession, and because I am quite sure there is no one who will better remember the circumstances attending the case or who will be less likely to forget them. It is a case of death which resulted in a child under the influence of chloroform during the month of November last. These cases are always doubly unfortunate. They are unfortunate in the first place, and beyond all other reasons, on account of the death of the individual, and the terrible news which is so suddenly brought to the bereaved friends. They are unfortunate because they remind the profession of the fact, which cannot be disproved, that physicians have not found an absolutely safe anæsthetic. All anæsthetics are dangerous, and all of them occasionally cause death, and the most astounding part about it to outside individuals is, that doctors cannot tell why the patients die under these circumstances. These cases of death under anæsthetics are always unexpected, and in the vast majority of cases unavoidable.

This patient was a bright, perfectly healthy little girl, about 11 years of age. She had on her face a large mole covering the greater portion of the surface of the cheek, measuring more than two and one-half inches in one direction and over one inch in another. It was dark in color and had on it a large growth of coarse hair. It was a source of very great annoyance to the child, increasing her timidity, and of great trouble to the friends. I, and other physicians who saw the case, recommended its removal because we had had experience in such matters, had done such operations safely, and because it could not be removed in any other way than by surgical operation. There was nothing in the appearance of the child upon examination that would counter-indicate the use of an anæsthetic in any way, and chloroform was chosen; because, personally, I do not believe there is a noticeable amount of difference between the two anæsthetics, chloroform and ether. The difference which seems to exist I believe is based upon the fact, that a larger number of physicians use chloroform than use ether. And although the number of deaths recorded as following the use of chloroform are greater than from the use of ether, it is dependant upon the fact that chloroform is used oftener than ether. But the fact still remains that all anæsthetics and all combinations of them have been followed by unexpected death in individuals who were healthy as well as in those who were diseased, and the post-mortem examinations made after death have in no case shown satisfactorily the cause of death, so we do not understand absolutely why they die.

In this case the anæsthetic was commenced in the room which the parents of the child occupied, and was given by an interne, Dr. Gill, of the Presbyterian Hospital. At first the child exhibited no more excitement and no more opposition to taking the chloroform than do other patients, and not nearly as much as many. It is the constant experience of physicians that they are compelled often to use physical force for some time before the patient is anæsthetized; that was not so in this case. I was a little anxious about the case and was ready to do the operation, but the patient did not appear, so I sent a second interne, Dr. Jay, to see what the trouble was. He did not return for some time and I sent the chief assistant, Dr. Ochsner, and in a few minutes the child was brought into the room quietly asleep. The anæsthetic was then given into the hands of the oldest interne, Dr. Albright, and he administered it carefully during the operation. The operation required about twenty-five minutes; it was about the face, and my hands, which are not very small, were over the child's face all the time and consequently the anæsthetic was not used steadily, very little chloroform was given to the child. The instrument used for giving the anæsthetic was Esmarch's inhaler, a wire frame covered with flannel, with which it is impossible to absolutely prevent the entrance of air. The child made no demonstration of any kind that would attract attention. The operation was practically completed; the pigmented nævus was removed and pieces of skin taken from the thigh for transplantation, to cover the defects and diminish the amount of scar, were being put in position; when, without any warning, without the administration of any chloroform for at least five minutes, the child was seized with general convulsions; she ceased to breathe, her heart ceased to beat, she gave a few gasps and was dead. Every effort was made for an hour and a half to restore circulation and respiration, by artificial respiration, injection of ether and whisky and nitrite of amyl, and the use of electricity, but all efforts failed.

The case is interesting to all medical men, and to all lay people. To medical men because it shows, as I have said, that ether and chloroform are dangerous anæsthetics, and it confirms the experience of every physician, that when such an unfortunate happening as this comes upon him, it is unexpected, and no matter what care he may use and what attention he may give to the case, such accidents do occur. It is a well-known fact among my friends that I am especially care-

ful about anæsthetics, that I dread all of them. I never have a patient put to sleep without watching them personally, no matter who is my anæsthetizer. My mind was on it, as well as the operation in this case, and I gave advice repeatedly during the administration of the chloroform as to the necessity of ceasing to give it or of giving a little more. The death in this case was truly and absolutely an unavoidable occurrence, such as may meet the physician any time and under any circumstances while using an anæsthetic. It shows the necessity of medical men fully protecting themselves against unjust suspicions and attacks on the part of any one, by never giving an anæsthetic, under any circumstances, unless one is able to prove that the circumstances attending the case were proper in every way.

MEDICAL PROGRESS.

Medicine.

THE OIL-SILK JACKET IN ASTHMA.—DR. S. C. BUSEY, of Washington, has used the oil-silk jacket in bronchial asthma with good results, and recommends it for further trial especially in that type of cases which is under the influencing control of climatic and atmospheric conditions. In the case of one patient the regularly recurring winter paroxysm has been apparently kept well under control whenever the jacket has been adopted at the onset of an attack; from October, 1889, to January, 1890, the jacket had been worn continuously; when it was removed, about January 1, 1890, because of the discomfort incident to a period of unseasonably warm weather. Since its last removal the patient has had numerous very slight attacks of dyspnœa, coming on during the early morning hours but disappearing after sunrise; none of these attacks were noticed during the time of its being worn. How far idiosyncracy influenced the good effects obtained by Dr. Busey, he admits that there is room for doubt, but the suggestion is offered by him in the good faith that the treatment may be tested by a more extensive trial, and thus found a useful expedient to some of those who suffer from asthmatic and bronchial complications.

FIBRILLARY CHOREA.—DR. MORVAN (*Gazette Hebd.*)has observed five cases of peculiar fibrillary tremor to which he has given the name "*chorée fibrillaire*," and which he thinks constitutes a new clinical group. His first case was a young peasant who had always been well but who complained of a peculiar trembling in the buttocks and a general feeling of weakness. The tremor increased and involved successfully the thighs, back, shoulders and arms. The contractions were confined to the single muscle bundles and so did not produce movements of the limbs; they were irregular so that the skin over the muscles rose and fell like the keys of a piano. The patient could perform all of the usual movements, and during voluntary contraction the abnormal ceased. The affected muscles were painful, and pain was felt in the legs when in the upright position. Temperature was normal but the pulse was very rapid. The contractions became more frequent and were especially marked in the buttocks and deltoid. The face, hands and feet remained free. Three weeks after the beginning of the disease albuminuria was found, and a few days later delirium came on and the patient died comatose.

Another case was that of a boy 16 years of age who had similar fibrillary contractions, especially in the buttocks and thighs. With the use of warm baths at the end of four weeks the contractions ceased. The disease returned early in the summer of each of the next three years.

A young woman, 23 years of age, was similarly affected, associated with general weakness and chlorosis. Recovery at the end of four months, and three years later a slight attack of the same trouble. Two additional cases are given, both young girls with a history similar to the one above described. In each of these the contractions were confined to the legs.

Surgery.

APHASIA DUE TO ABSCESS OF THE BRAIN.—SÆNGER and SICK (*Deutsche med. Wochensch.; Ctrlbl. f. Chir.*, No. 40, 1890) report a case which is interesting because the location of the abscess in the posterior third of the left temporal lobe was diagnosticated by the presence of sensory aphasia. The patient, a man fifty years of age, seemed to be suffering from some psychical trouble. He did not answer the questions which were asked him, but simply pointed to his left ear, which was so much swollen that the external meatus was nearly closed. In three days this swelling had become sufficiently reduced to reveal the discolored drum membrane, through a perforation in which a small quantity of foul-smelling pus escaped. He lay silent and not appearing to notice, but when excited he talked much in incomprehensible language. He could not give the right name to objects, but, instead, gave a roundabout description of them. The pulse was slow, 48 to 56 a minute; he suffered from headache, periodical vomiting, and stubborn obstipation. Finally a right-sided facial paralysis appeared, together with a weaker power of pressure in the right hand. The wife of the patient said that her husband had for several years had a discharge from his left ear, and for the last fortnight had complained of pain in the ear and headache. From these circumstances—that there was a chronic suppurative inflammation of the middle ear, acute symptoms of pressure on the brain, and

aphasic disturbance–the diagnosis of abscess of the brain in the posterior third of the first temporal convolution of the left side was made, and this diagnosis was confirmed by operation. The result of the operation was pronounced "ideal" nearly three months afterward, in spite of a small hernia cerebri which complicated the convalescence.

The writers maintain that only two cases have hitherto been reported in which the diagnosis of abscess of the brain was made from the presence of aphasia.—*N. Y. Med. Journal.*

CARCINOMA MAMMÆ. — BIHLER (*Münchener Dissertation*, 1890) reports the results of forty operations made by Angerer. In each case the entire gland was removed, and the axillary space was cleaned out whether the enlarged glands could be felt or not. In most of the cases the pectoral fascia was removed and in the later cases a portion of the muscle itself. In cases of relapse the masses, if movable, were removed with the knife, when the gland was affected, and with large tumors, they were excised with the thermocautery after the method of Nussbaum.

The results to date are: Dead 65 per cent., 12.5 per cent. live but the disease has returned. In 20 per cent. there has been no return of the trouble, among these are three in whom more than three years have elapsed since operation, and two in which more than two years have passed.

ACTIMOMYCOSIS OF THE SKIN. — TILANUS (*München. Med. Wochenschr.*) reports a case in which the skin of the face was alone affected, the muscular structures and mucous membrane of the mouth remaining free. Two similar cases have been reported, one by Albert, the other by Majocchi.

The history of the case was briefly as follows: A young woman 22 years of age presented a swelling of the right half of the face that slowly increased and later opened in several places; finally the whole region from the external angle of the eye and including the side of the neck as far as the angle of the lower jaw. The skin of the part presented red prominent masses interspersed with patches of healthy tissue, with here and there an ulcer, which discharged a sero-purulent fluid. The few remaining teeth were carious and were removed. Treatment consisted in thoroughly curetting the affected skin, and free applications of a solution of corrosive sublimate.

The etiology of the trouble was obscure, but the author thinks the carious teeth played an important rôle in the production of the disease.

Dr. Lesser, of Halle, contributes to the *Arch. für Klin. Chir.* three cases of actimomycosis hominis in which the skin alone was affected. The first was that of a salesman 35 years of age who had suffered from toothache for one year, and had eighteen extracted. For six months has had an ulcerated swelling of the forearm. A careful examination revealed similar ulcerations upon the right side of the head, in the right infraclavicular grove, and the left side of abdomen.

A second was that of a 34 year old man, who for several days had presented two swellings on the right calf. The enlargements were painful and the patient had rigors with high fever. The subcutaneous lymphatics were not involved.

A third was that of a locksmith, who six weeks previously had been lightly burned upon the right leg. In this region a slight swelling appeared, which rapidly increased, followed by ulceration and the discharge of some pus.

All three cases made a rapid recovery after excision, curetting and cauterizing. The diagnosis in each case was confirmed by the finding the *strahlempilz* in the discharges of the wound.

The author says that it is of special importance to note the great variability in the clinical picture presented by actimomycosis of the skin in man. At times the process may be sub-acute; again, it may be acute with marked disturbance of the general health. As a rule, swelling of the regional lymph glands is not present.

Obstetrics.

BROMIDES IN VOMITING OF PREGNANCY.—DR. WERTHEIMER, of Freiburg (*Centralbl. f. Gynäk.*, December 20, 1890), describes the case of a woman, aged 33, who had borne eight children, who had required artificial abortion at the third and fourth month respectively in two labors, on account of uncontrollable vomiting. She once more became pregnant, and violent sickness set in only fourteen days after conception. No nourishment could be taken, and she soon became dangerously exhausted. Belladonna and morphine failed to influence the sickness. Bromide of potassium checked it slightly. Dr. Wertheimer then gave, every two hours, half an ounce of a mixture consisting of three parts of bicarbonate of soda, two of bromide of potassium, two of bromide of sodium, and one of bromide of ammonium, dissolved in thirty parts of syrup of orange peel, and one hundred and twenty of distilled water. The vomiting ceased, the patient's strength increased, and, at the time of the report, the patient had passed the fifth month of pregnancy without any return of the sickness.—*Brit. Med. Journal.*

TREATMENT OF PLACENTA PRÆVIA.—DRS. W. J. KOLFF and TREUB (*Nouvelles Archiv. d'Obstet.*, September, 1890) record the results of this malpresentation, as observed by them at Leyden. Between 1856 and 1879 26 cases of placenta prævia were noted by Dr. Kolff, with a mortality of 42 per cent. On the other hand between 1887 and 1889 Professor Treub has ob-

served 13 cases. In all of this series he performed combined version, losing only one patient. The fatal case cannot fairly be attributed to the method of delivery, for the woman died of pyæmic phlebitis, set up by a dirty sponge which the midwife introduced into the vagina to check the hæmorrhage before version was performed. Hence the mortality did not amount to 8 per cent. Of the children 8 (or 61 per cent.) died, but 4 must be subtracted as the heart sounds could not be heard before version; thus the precise mortality was 30 per cent. During childbed bad results were observed only in cases that had been previously examined by midwives, except in one instance, where the vagina had been plugged with sterilized absorbent gauze instead of iodoform gauze. The great principle of practice at Leyden is to separate version from extraction. The former is undertaken in order to save the mother. It is only in cases of subsequent hæmorrhage that extraction by the feet is carefully undertaken. Dr. Kolff praises that practice, as it renders interference practicable very early in the labor, before the mother is exhausted by hæmorrhage, saves her from the risks of prolonged plugging, and allows the later part of labor to continue slowly and yet without danger. The risk of *post-partum* hæmorrhage is thus greatly lessened. The risk to the child is theoretically great, yet the above statistics prove that the infantile mortality is not very high.—*Brit. Med. Journal.*

THE MANAGEMENT OF THE MENSTRUAL EPOCH.—DR. A. W. PARSONS, of Northampton, Mass. (*New York Medical Journal*), says: "During the past few months I have adopted a procedure which has afforded me the heartfelt gratitude of every woman who employs it. For obvious reasons its use will be largely confined to married women. A full-sized tampon of antiseptic cotton, to which a string is attached, is inserted into the vagina through a speculum as soon as the premonitory symptoms of the approaching menstrual epoch are noted. It may be left *in situ* for twenty-four hours, unless the uterine discharge begins, when it should be removed as soon as it is saturated, and the vagina washed out with a warm antiseptic solution by means of a fountain syringe, and a fresh tampon introduced. This procedure should be continued until the flow ceases. The principal disadvantage of this method is the difficulty of using the speculum and preparing and introducing the tampon; but I have met with no case where one or two lessons did not teach the woman the *modus operandi*. Its advantages are many. There is entire absence of odor, no necessity of wearing the napkin, and the sense of support to the uterus afforded by the tampon is immediate, and exceedingly grateful."—*Medical Record.*

Pathology.

RELATION OF STOMACH DISORDERS TO AFFECTIONS OF THE MALE GENITAL ORGANS.—PEYER (*Sammlung Klin. Vorträge*) claims to have demonstrated reflex neuroses of this kind in over 300 cases. He points out the close, and frequently observed connection between disease of the female generative organs and the stomach, and claims that a similar relation is to be observed in the male. The principal cause of these neuroses he finds in onanism, abusus sexualis and coitus reservatus. The symptoms relating to the stomach are atony, gastroplegia, nervous vomiting, eructations, cramps, and the secondary disturbances of these conditions. The diagnosis is oftentimes difficult, but may be made by the presence of the products of chronic urethritis (*urethralfaden*), and the so-called *Hodencylinder* in the spermatic urine.

Therapy is to be especially directed to relieving the local sexual disorders, and the condition of the nervous system.

VIRULENCE OF THE SUPRA-RENAL CAPSULES IN RABIES.—BOMBICCI (*Riforma Medica*) has determined that the adrenals contain a considerable quantity of the rabic virus, though less than is found in the central nervous system. When portions of the capsules are injected into healthy animals it produces the characteristic phenomena of rabies, but the disease is milder than when portions of the cerebro-spinal axis are used.

The writer determined experimentally that there was a true ante-mortem accumulation of the poison in these organs, and not a simple post-mortem diffusion.

Bacteriology.

THE PRODUCTS OF PATHOGENIC BACTERIA.—During the past two years great progress has been made in the study of the action of pathogenic bacteria. This work has chiefly been carried on by Koch and Pasteur on the Continent, and by Drs. Sidney Martin and Hankin in England. In the *Revue de Médecine*, 1890, No. 7, DR. CHARLES BOUCHARD publishes an article on the properties of the substances secreted by pathogenic microorganisms. It contains the chief part of his address before the Tenth International Congress on the "Mechanism of Infection and Immunity." After an exhaustive summary of all that is known concerning the action of products of metathesis with which we are acquainted, Bouchard relates a series of thirty-one experiments which he made, partly in order to investigate the power which blood-serum possesses of destroying bacteria, and partly to ascertain how far their products confer an immunity against similar or other bacteria. Many experiments demonstrated the influence of the same products on phagocytosis. The space here is too limited to enter into the details of this interesting paper, but the general results of Bou-

chard's investigations are as follows: Among the substances secreted by the microbes are some which have an inhibitory action on them—that is to say, these products tend to retard the development, increase and characteristic action of the microörganisms; other substances are favorable to their growth. These, however, only act indirectly by modifying the material upon which they grow (peptones, etc.). Such products may be favorable or unfavorable for other microbes. Some organisms produce poisonous substances upon which depends their virulency. Amongst pathogenic microbes are some which secrete substances that confer upon animals inoculated with them an immunity against these particular germs; this they do not by their presence only, but by modifying the animal organism, so that it forms a less favorable pabulum for the development and growth of the bacteria, and causes the leucocytes to perform the process of diapedesis more rapidly, and to assume their functions as phagocytes more energetically. If an animal be inoculated with these substances, together with a pure culture of the same bacilli from which they were obtained, the disease runs a more rapid course, whilst its development will be delayed or prevented if the animal be inoculated a few days before the injection is made. If bacteria which act antagonistically towards one another be cultivated together in a test-tube, the soluble products of the "stronger" can be made to retard the development of the "weaker" organism. So that if an animal be inoculated with the products of metathesis of the "stronger" at the same time as the active principle of the "weaker," the action of the latter will be delayed and weakened. Some microbes appear to assist the action of others; these Bouchard terms "auxiliary microbes." By this means an animal may be infected with a disease which it would otherwise resist.—*Lancet.*

GERMICIDE ACTION OF THE GASTRIC JUICE.—In the *Vratch*, Nos. 38, 40 and 41, 1890, p. 894, DR. BORIS I. KIANOVSKY, of St. Petersburg, publishes a valuable paper on the subject, embodying his elaborate experiments on fifty persons, some of whom were healthy, some suffering from gastric cancer, dilatation of the stomach, etc. The author's essential results may be summarized somewhat as follows:

1. A fasting healthy stomach always contains great numbers of microbes of various species.

2. The numerical strength of such microbes as are found in the gastric contents an hour or so after a meal stands in a direct relation to the number of microbes in swallowed food, drink, air, etc.

3. The gastric juice possesses distinct antimycotic properties, which are to be attributed mainly to the presence of a free hydrochloric acid.

4. "Given a gastric juice of a normal average general acidity, and with a normal average proportion of free hydrochloric acid, the secretion kills the bacteria in a systematic manner—that is, the longer it remains in contact with the microbes the greater number of the latter are destroyed."

5. In the case of the juice of a subnormal acidity, however, the bacteria continue to steadily grow in number.

6. The microbes do not seem to take any part in the gastric digestion.

7. In such sick persons whose gastric juice still continues to contain a sufficient proportion of free hydrochloric acid, the secretion proves to possess the same germicide properties as in healthy people.

8. Such sick persons whose stomach elaborates but trifling amounts of free hydrochloric acid, are liable to be infected through the organ to a greater degree than healthy subjects.

9. "Nobody should allow his stomach to remain empty for a long stretch of time after morning rising; especially medical practitioners should take care in this regard."

10. "In times of epidemics (*e. g.*, cholera) everybody should avoid fasting for a long period. It is advisable to arrange one's meals in such way that the stomach could always contain a certain quantity of food (sterilized, if possible)."—*Provincial Med. Journal.*

MICROÖRGANISMS IN LEUKÆMIA.—DR. CLAUDIO FERMI (*Centralbl. für Bakt. u. Parasitenk.*, Band viii, No. 18, 1890) was able, some eighteen months ago, to separate from the enlarged spleen of a man, aged 55, who died of leukæmia, with enlargement of the various organs and of the peritoneal, mesenteric and axillary glands, pure gelatine plate cultivations of an organism which appeared as rounded or oval, white, non-liquefying colonies. Inoculated into gelatine in tubes, the growth appeared principally at the surface in the form of a milky-white, thickish layer, growing moderately rapidly, and gradually giving rise to slight liquefaction beneath. These colonies were made up of short, thick rods with rounded ends, the centre of the rod remaining unstained. At first he was inclined to assign no special *rôle* in the production of leukæmia to these organisms, but as he was unable to find them in similar positions in twelve other bodies that he examined—cases of pleurisy, meningitis, nephritis, sarcoma, diphtheria, tetanus and typhoid fever—he came to the conclusion that they must have some definite relation to the disease. Kelsch and Vaillard have since then shown that these organisms are pathogenic to rabbits, and that after the death of the inoculated rabbits they may be found in the blood.—*Brit. Med. Jour.*

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SATURDAY, FEBRUARY 14, 1891.

THE HIGHLANDS OF MEDICINE.

There is a certain class of medical literature and teaching that is made so positive and dogmatic, as to create doubts and suspicions of its reliability. Many very good teachers err in supposing that unless they state the facts of medicine in the most positive way, it never can impress the student. Often medical text-books are written in this spirit, and students and readers who accept them as final, have much to unlearn in after life. While it is not quite true that the positive dogmatic man, on questions of science, *is a quack*, it is true that empiricism depends on the positiveness by which it is proclaimed. DARWIN expressed the truth when he said: "Ignorance more frequently begets confidence than does knowledge; it is those who know little and not those who know much who so positively assert that this or that problem can never be solved by science."

The leading teachers and writers in all the exact sciences, are particularly noticeable for their modest statements of facts, only claiming that from their experience and the evidence before them such facts appear to be true. Often these leaders of science differ widely, and the reasons for it are stated, and the facts become a matter of study and criticism, in a spirit and evident consciousness, that on wider knowledge may show the errors of both. This does not appear so clearly in the science of medicine. To-day there are far too many medical teachers, authors, and journals and books, that are down on the very lowlands of science, who assume that a fact which seems apparent, is final and unchanging; that there are certain great basal truths in medicine absolutely fixed, and to these there should be a steady accumulation. To such men the science of medicine is merely a hunt for new fixed facts. If certain phenomena occur in their experience often, they conclude that it is an absolute fact, and become warm defenders of it. Such men never have broad comprehensive views of medicine. They do not realize that medicine like other sciences is still very far down, and in the infancy of its growth. The anatomy of the body, outside of a few facts, is unknown; practically the physiology is a mass of unproved hypothesis; the phenomena of disease and diseased changes are equally hypothetical and unknown. In chemistry, the atomic theory is still vague and uncertain, and altogether theoretical. In materia medica a most bewildering mass of statements and theories follow each other, like the shifting scenes of a panorama. Surgery and practice of medicine and all the newer theories that come up in a night, are like the troubled waters of the ocean, incessantly changing, and taking on new and old aspects. Yet with all these theories, and confused, hypothetical apparent facts, there is a tremendous movement towards some great central truth, or ranges of truths, which can only be seen from a higher point of view. Every medical man who has gone up far on the frontiers of medical research realizes this, and is startled by the fact that all this theory and hypothesis in medicine, are but stepping-stones and roads of advance, to be abandoned farther on. The physician who from his inner consciousness, or from a mass of statistics, brings out some new theory which is accepted because of its reasonableness, or the author's reputation, is sadly deluded if he supposes he has found a final truth. A few years and it is replaced by other wider theories, and if we believe the modern doctrine of evolution, this birth and death of theories is only the advance of mind towards the manhood and Godhood of the race.

These views are illustrated in the present excitement of a new remedy for consumption. Many of the journals, essays, lectures, and editorials, on this topic have startled the reader by their positive completeness, and clear conclusion that almost a millennium had arrived for the poor

victims of phthisis. Credulity and expectancy merged into sharp rivalry, to usher in this new era. The broad scientific statement of the discoverer that so far, there were many reasons for supposing that such and such results would follow the application of such and such means, and giving the experimental evidence on which he ventured such a general opinion, was the true voice of a scientist. While the positive excited statements which followed, were but the noise and roar of those far down in the valley, unable to comprehend what this master of research, had seen higher up.

Most of the real advances in medicine have come silently, and after a time it becomes difficult to find the exact source. Many real workers in different parts have reached similar conclusions, from different points of view, and from their quiet conservative statements, new ranges of facts have appeared. The noisy, assertive student who makes out a complete theory, and defends it sharply in journal or volume, is rarely a true scientist.

The medical man who is on the highlands of science to-day, is never dogmatic or positive, all his conclusions and opinions are stated as only apparent truths at present, but subject to constant revision and change, from the application of new facts and evidence. Medical science is really a study of the laws of human evolution and dissolution, and all our knowledge of necessity must be imperfect and open to error, and subject to constant change. What is most needed is a judicial analytical method of study. Not a crowding of statements and theories, but education of the mind to discern and compare the appearances and phenomena of human life. Hence positive text books, lectures, journals and essays which assume completeness, in their theories and statements, are obstructive to science. New discoveries, and new theories and methods of treatment, are to be welcomed always, but never as final absolute truths. If this could be realized literally, we should have no *fads* in medicine, no popular delusions or theories, that would die away only to give place to others. The bacilli and each new theory would pass the gauntlet of critical examination, and quietly take its place as an open door to wider realms of study. CARLYSLE'S criticism is unfortunately not untrue, for many of the profession: "Doctors, like the masses of mankind, keep down in the valley of knowledge and science; only a few ever climb up the highlands and see the race march with the eye of true science."

NON-ISOLATION IN TYPHUS FEVER.

DR. FÜRBRINGER reports to the Berlin Medical Society the principal data concerning the late epidemic of typhus fever in the city above named. The disease sprang up in January, 1890, and ran for a period of seventy-five days. There were, in all, 155 cases received at the hospital; 67 were males, 75 females, and 13 were children under 12 years. The deaths were males 12 per cent., females 8 per cent., and children 15.5 per cent. Many of the males who died had a history of excessive drinking. Isolation was not practiced with any rigidity, and yet no other patients contracted the fever; only four of the sisters of mercy took the fever, and one other attendant, with no deaths among the latter. The excreta were removed or destroyed without delay, and this DR. FÜRBRINGER holds is the main point of prophylaxis whether in private or in hospital practice; in importance, it far outweighs all attempts at isolation. Forty-two of the patients, when convalescent, were sent to the convalescent homes, affiliated with the general hospital, and with good results. The above is a brief abstract from the Berlin letter to the London *Lancet*.

VARIOLA AND TUBERCULOSIS.

In the *British Medical Journal* of January 24, DR. LAWRENCE cites two instances of remarkable recovery from advanced stages of tuberculosis, seemingly as the result of virulent forms of small-pox. The patients, he says, were both young men in the last stages of pulmonary consumption. In each case there were large vomicæ and the patients were much emaciated. Both the young men were attacked with virulent small-pox, with very high temperatures. They were supported with stimulants and a nourishing diet, and as they recovered from small-pox the pulmonary symptoms in each case began to disappear. They each made good recovery and are now in robust health. In these instances so well attested it becomes a question of deepest interest as to the manner in which such results were accomplished. Is there a small-pox bacillus which controls the situation, and is the weaker bacillus

of tuberculosis overpowered and driven out? or by reason of the new disease did the phagocytes take on increased activity and destroy the tuberculous bacilli? These questions raised by the writer are sure to attract attention and in our future bacteriological studies we must confront the question as to how tuberculosis is modified or controlled by small-pox, if such shall be found to *be* a fact.

EDITORIAL NOTES.

DISPUTED DIAGNOSIS.—At a recent monthly meeting of the Albany, (N. Y.) Health Board, Dr. Lewis Balch, the City Health Officer and Secretary of the State Board of Health, reported that during January 203 cases of typhoid fever had been reported to him, and that eighteen deaths had been caused by it. He, however, insisted that there was very little true typhoid fever among all the reported cases. Although admitting that it was more prevalent than usual, he said he did not know what to call the prevailing disease, but still inclined to the belief that defective drainage caused it.

Other physicians, however, hold that with but few exceptions the alleged cases of typhoid fever have occurred in a section of the city that is supplied with water from the Hudson River. As the fever has been prevalent in the cities up the river, which drain into it, the general belief is that the water has caused the disease.

TRAINED NURSING FOR THE POOR.—At Brooklyn, New York, there has been organized, on a small scale, a nursing department of the Red Cross Society. One district nurse has begun duty, and others will follow if the plan works satisfactorily; she gives her services free of all charge to those who are unable to employ a nurse. Her attendance upon the sick poor must be at the request of the attending physician, whose instructions are the invariable guide for her action.

THE EFFECTS OF KOCH'S LYMPH.—It is already evident that this liquid exerts a powerful pyroteginous influence, and is capable of exciting congestions throughout the whole system. It is stated by investigators that it is impossible to determine which organs shall most markedly feel its effects, and that in the same person different inoculations affect them differently. Diseased organs are most likely to suffer, but it is not necessary that the affection shall be of tuberculous character. Organs apparently healthy may take on intense congestion. The lungs and bronchi are frequently found to be inflamed. Cases of myocarditis and endocarditis are reported in connection with the use of the "lymph." Swelling of the spleen, and albuminuria are reported as resulting from inoculation, and several cases of hæmaturia are reported as lasting from three to four days each. Evidently tuberculous subjects are not alone affected by the inoculation of the "lymph."

PASTEUR INSTITUTE AT NEW YORK.—The Directors of this institution held a meeting January 30, to receive the report of Dr. Gibier, regarding the proposed enlargement of his accommodations. The building now occupied, No. 178 West Tenth St., is most of the time over-crowded with patients, and almost daily applicants have to be turned away. The Directors voted to take steps to provide more commodious quarters without delay.

THE CHICAGO MEDICAL SOCIETY, whose action on the question of the removal of THE JOURNAL to Washington appears in this issue, has a membership of 494 members.

MEDICAL ITEMS.

A RECENT enumeration places the number of doctors in Vienna at 1,315, about one to every 1,000 of its inhabitants.

THE TUBERCLE BACILLUS seems to differ from the other bacteria from the fact that albumens alone are insufficient as nourishing media, but that the presence of glycerine and carbohydrates are essential to its growth.

THE DEATH OF SURGEON GENERAL BALFOUR, Honorary Physician to the Queen of England, occurred at Wimbledon Park January 17, at the age of 78 years. For many years, and nearly up to the time of his death, he had been a highly valued contributor to the columns of the London *Lancet*. He had held many important positions and was universally esteemed. The English journals have only words of sorrow and of profound respect for one who could remember Walter Scott, and Jeffrey and Allison, Chalmers, Wilson, Christison and, not least, John Brown, who wrote of "Rob and his Friend."

BACTERIOLOGICAL RESEARCH IN INDIA.—The

Provincial Medical Journal says we learn from the *Indian Medical Gazette* that Professor Lingard, who has arrived in India to take up the new office of bacteriological research at the Poona College of Science, has been appointed on the recommendation of Dr. Cook, after consulting the best authorities. The appointment is made on the basis of a three years' engagement, and the establishment of a new and fully equipped laboratory at Poona is an event of very considerable interest to the whole of India. Dr. Alfred Lingard has devoted many years to bacteriological science, and was a lecturer on the subject, both elementary and advanced, at the Birkbeck Institution, besides having also lectured on physiology. Before leaving Europe he visited the great Continental laboratories, including those of Berlin and Leipsic, for the purpose of inspecting the newest methods of research.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION held its first meeting, for organization, at the New York Academy of Medicine, on Thursday, January 22d. Officers were elected as follows: President, Dr. G. Betton Massey, of Philadelphia; vice-presidents, Dr. W. J. Morton and Dr. A. H. Goelet, of New York; secretary, Dr. W. H. Walling, of Philadelphia; treasurer, Dr. George H. Rohé, of Baltimore; councillors, Dr. Horatio R. Bigelow, of Philadelphia, Dr. F. H. Martin, of Chicago, Dr. W. F. Hutchinson, of Providence; Dr. Frederick Peterson, of New York, and Dr. C. D. Palmer, of Cincinnati.

THE AMSTERDAM SOCIETY OF NATURAL HISTORY AND MEDICINE celebrated the centenary of its foundation on October 15th, when the gold medal awarded every ten years to the investigator who has done the best microscopic work in that time was presented to Professor E. Haeckel, of Jena, for his researches on deep sea zoology.

THE NEW BUILDING OF THE MEDICAL DEPARTMENT OF THE ARKANSAS INDUSTRIAL UNIVERSITY.—On the 5th ult. the elegant and commodious new building of the medical department of the Arkansas Industrial University was occupied for the first time. There was no unusual ceremony attending the event, but it marks an event of more than ordinary importance to the medical profession of the Southwest. For twelve years the school has occupied a handsome building in Little Rock, on Second, between Louisiana and Main Sts., but as the structure had been erected for other purposes, the faculty never felt quite comfortable in it, and long ago determined to build an edifice that would be a model of its kind—handsome, commodious, comfortable. The new college is on the corner of Second and Sherman streets, situated on a lot 50 × 100 feet, the building being 40 × 100, and three stories high. The first story has a large lecture hall capable of seating comfortably 250 students. In the rear of this are a number of rooms suitable for all the uses for which such apartments in a medical college are usually set apart. On the second story is the model amphitheatre, as capacious as the lower lecture room, and affording students every facility and comfort for witnessing surgical clinics and demonstrations of all kinds. Surrounding and in the rear of the operating amphitheatre are more rooms, well adapted for the uses for which each has been selected. On the third floor is one of the largest, best lighted, and most convenient dissecting-rooms to be found anywhere. The building is splendidly lighted and ventilated, supplied with water, gas and electricity, and has a fine elevation.

The lecture-room and amphitheatre are supplied with comfortable and substantial opera chairs. A contract has already been let for paving East Second street through its entire length. When this is completed the college will be pleasantly accessible by vehicle in the worst weather, as it is now by the street cars, which pass within one block. The patrons of the college have increased in numbers and intelligence every year, until at the present there are nearly a hundred students in attendance. The faculty have done their work conscientiously, quietly and well, and the thanks of the doctors in all this part of the country ought to be given them.—*Journal State Med. Soc. Arkansas.*

RESPONSIBILITIES OF THE RAILROAD SURGEON.—The services demanded by railway companies of their surgeons are most exacting. Railway injuries require immediate attention, whatever the needs of the surgeon's private patients may be. The injured employé is never backward in exacting services that cost him nothing. Under the impression that the company foots the bill he is determined to have all in the way of attention possible. The responsibilities assumed by the surgeon are of the gravest

nature. If the injured fails in making a case against the company, his next step is to commence action against the surgeon, if he can find some shyster of an attorney who can see his fees in the suit, and the cost of these suits must be borne by the surgeon, not the company. The order of skill required of the railway surgeon is of the highest. Of whom is demanded greater knowledge, experience and ingenuity than the surgeon called to attend the injured in a serious railway accident? Quick judgment, ready knowledge, a skilful, trained hand and eye are all requisite to one called upon to meet an emergency where injuries of every nature and extent are to be met with and their necessities relieved.—*Railroad Age.*

IMPURE ICE AS A CAUSE OF DISEASE.—The State Board of Health of New York has come to the following conclusions as to the effects of impure ice in causing disease: "Ice formed in impure water has caused sickness; it may contain from 8 to 10 per cent. of organic matter dissolved in the water, and in addition a very large amount of organic matter that had been merely suspended or floating in it; it may contain living animals and plants ranging in size from visible worms down to the minutest spores, and the vitality of these organisms may be unaffected by freezing."

HOSPITALS FOR ALASKA.—Dr. Clarence Thwing, of Brooklyn, has accepted an invitation to establish one or more missionary hospitals in the Territory of Alaska, beginning at Sitka.

A BRITISH INSTITUTE OF PREVENTIVE MEDICINE.—Under the stimulus of the great discovery of Koch a kind of uprising has taken place in England in favor of an active physiological, pathological and bacteriological institute for research that shall be worthy to be called a national institution. At the head and front of this enterprise is Sir Joseph Lister, with numerous influential seconders, such as Sir Andrew Clark, Sir Spencer Wells, Sir George Paget, Sir James C. Brown, Jonathan Huchinson, Ernest Hart, Professors Humphry Horsley, Watson Cheyne, Ray Lankester, Huxley, Sir Henry Roscoe and C. S. Roy. The exact nature and scope of the work carried on in the institute will necessarily depend on the liberality of the public subscribers to the fund or on the support granted by the government; but if possible it is proposed that the new institute shall be on the same general plan as the Institut Pasteur, which is also the plan upon which the new institute for Koch is in process of building at Berlin; that is it will not be exclusively for research on the infective diseases of man and animals, but also for providing inoculant material for such diseases as tuberculosis, hydrophobia or anthrax. The Executive Committee has already sent their representative, Mr. E. H. Hankin, to Berlin for the purpose of learning directly from Koch the method of preparing the antituberculous lymph; Mr. Hankin has already made an enviable name for himself by his original work on the means of conferring immunity against anthrax. He is already at work at Koch's laboratory.

THE ELECTRIC LIGHT.—It is currently reported that the Queen of England has discontinued the use of the electric light in her private apartments, on the ground that it is injurious to the eyes. We are inclined to believe that this is founded on some misapprehension, for when properly protected by opal glass or by shades, the electric light can be toned down to any desired extent, and it certainly possesses many advantages over gas. It is more easily lighted and extinguished, less dangerous, more cleanly, free from odor, gives off little heat, does not spoil the air, is quite as steady, and, so far as we can see, has only one drawback—that, namely, of being more expensive.

THE IMPERIAL RUSSIAN INSTITUTE OF PREVENTIVE MEDICINE.—The Institute of Experimental Medicine, founded in St. Petersburg by Prince Alexander Petrovitch, of Oldenburg, at a personal cost of about 200,000 roubles (£23,000), was formally opened and handed over to the Imperial Government on December 20. The ceremony, which partook largely of a religious character, was attended by the Ambassadors, several members of the Czar's family, and by M. Chamberland, representing M. Pasteur; Dr. Pfuhl, representing Professor Robert Koch; and Mr. Watson Cheyne, representing Sir Joseph Lister. The Prince of Oldenburg was thanked by imperial rescript and appointed Governor of the Institute, and the three delegates having delivered brief addresses each in his own tongue, the proceedings terminated with an entertainment given at the Oldenburg Palace.

TOPICS OF THE WEEK.

THE ETHICS OF EXPERIMENTATION UPON LIVING ANIMALS.

Cruelty may be defined as the infliction of suffering without sufficient reason. To be humane is an expression of the highest type of manhood And surely less inhumanity can be traced through the records of science, than can be found in the annals of either religion or philosophy. Who is more altruistic, more practically philanthropic, than a physician of the better class in his daily intercourse with suffering mankind? Yet these men are periodically assailed by well-meaning if not well-informed persons, and stigmatized as wantonly cruel for performing what, in the majority of instances, are but painless operations upon otherwise useless animals. An action is good, bad or indifferent, in direct ratio to its consequences. Now, those best able to judge admit that vivisection furthers the progress of scientific investigation, and, therefore, concede its defensibility. At the same time, when merely a matter of idle curiosity, it is held to be most reprehensible. Frequent repetition of painless experiments, however, finds its justification in the necessity for objective instruction. No person will deny that science has conferred incalculable good upon mankind. Nay, more, the burdens of the lower animals are daily being lifted by this modern offspring of the human intellect. Were it not possible to specify an individual discovery directly due to vivisection, nevertheless the fact would remain that the crucial test of all hypotheses is experimentation. And it was not until verification became the anchor of all research that knowledge ceased to drift hither and thither upon the treacherous sea of speculation. But one of the most important steps in the advancement of physiological inquiry, the discovery of the inhibitory function of the pneumogastric nerve by Weber, was the result of an experiment upon a living animal, and it could have been demonstrated in no other manner. Moreover, this same method, in the hands of Pasteur, has bestowed sufficient benefit upon the animals themselves to more than compensate for the suffering inflicted upon them in the interest of science.

Unbridled Nature is the personification of cruelty, and the few victims of scientific investigation that are sacrificed for the welfare of man are as nothing compared to the multitude that meet with apparently purposeless destruction. Certain facts are beyond the reach of the physiologist, except through these experiments; but since, in many instances, pain is a disturbing element, its abolition may be relied upon from this, if from no higher motive. The highest order of man feels unwilling to inflict needless suffering upon any living creature. How much right we have to the lives of the lower animals remains an open question. And though, at this stage of our civilization, it seems to be the general opinion, at least as expressed by man, that the animal shall be slain for our needs, still the causing of unnecessary pain is justly reprobated. Nearly all vivisections, assuredly in our country, are performed after the animals have been rendered insensible; but where sentiment blindly forms convictions, reason appears to hold no sway, hence, despite the facts of the case, these perennial crusades against a very necessary method of experimentation. Ultra-humanitarianism in its opposition to scientific advancement is liable to lapse into insipid sentimentality.—Dr. Stephen S. Burt in *The Post Graduate*.

THE CURVE OF HEALTH.

Oliver Wendell Holmes says in the *Atlantic Monthly*: Let me tell you one thing. I think if patients and physicians were in the habit of recognizing the fact that I am going to mention both would be gainers. The law I refer to must be familiar to all observing physicians, and to all intelligent persons who have observed their own bodily and mental conditions. This is, the curve of health. It is a mistake to suppose that the normal state of health is represented by a straight horizontal line. Independently of the well-known causes which raise or depress the standard of vitality, there seems to be—I think I may venture to say there is—a rhythmic undulation in the flow of the vital force. The "dynamo" which furnishes the working powers of consciousness and action has its annual, its monthly, its diurnal waves, even its momentary ripples, in the current it furnishes. There are greater and lesser curves in the movement of every day's life—a series of ascending and descending movements, a periodicity depending on the very nature of the force at work in the living organism. Thus we have our good seasons and our bad seasons, our good days and our bad days, climbing and descending in long or short undulations, which I have called the curve of health. From this fact springs a great proportion of the errors of medical practice. On it are based the delusions of the various shadowy systems which impose themselves on the ignorant and half-learned public, as branches or "schools" of science. A remedy taken at the time of the ascent in the curve of health is found successful. The same remedy taken while the curve is in its downward movement proves a failure. So long as this biological law exists so long the charlatan will keep his hold on the ignorant public. So long as it exists the wisest practitioner will be liable to deceive himself about the effect of what he calls, and loves to think are, his remedies. Long-continued and sagacious observation will, to some extent, undeceive him; but were it not for the happy illusion that his useless or even deleterious drugs were doing good service many a practitioner would give up his calling for one in which he could be more certain that he was really doing good to the subjects of his professional dealings.

BARON HAUSSMANN.

The death of Baron Haussmann, recorded recently, is not only a political event, but concerns all who are interested in the cause of sanitary reform. From 1853 to 1870 Baron Haussmann held the reins of office as Prefect of the Seine; and, in those days of absolutism, there was no popular control to check his actions. The Emperor Napoleon III gave him a free hand, and he set to work, regardless of expense, to regenerate Paris. Broad boulevards were cut right through overcrowded districts.

Light and air were let in upon quarters where epidemic diseases had become endemic. So mighty were the changes wrought, that a new word had to be coined to describe the work, and all Europe talked of the Haussmannization of Paris. The great changes effected have not, however, proved an unmixed blessing. The financial situation they created supplied M. Jules Ferry with the materials for the pamphlet which first brought him into political fame, and which he humorously entitled "Les Comptes Fantastiques de M. Haussmann." The debts then incurred are now so great a burden that they prevent the realization of sanitary reforms more urgent than those achieved by Baron Haussmann. It is not for us to criticise the artistic faults and merits of the new Paris Baron Haussmann built. The æsthetic side of the question is not our phase of the subject. Though opinions widely differ among artists, sanitarians can only mete praise for the giving of lungs to the town by creating the beauties and attractions of the Bois de Boulogne and the Buttes de Chaumont, etc. The splendid markets, slaughter-houses, and similar buildings of public utility Baron Haussmann caused to be built, have greatly contributed to the improvement of public health. But, on the other hand, there can be no doubt as to the evil tendency of sacrificing to external appearances financial resources that should be devoted to internal improvements. The magnificent dwellings raised on the new boulevards are constructed in defiance of all laws of hygiene, while but little was done to improve the sanitary condition of the old houses left standing. Judged by external appearances, nothing can be more vast, more splendid and sweeping than the new thoroughfares pierced by Baron Haussmann. The eye is fascinated, the imagination exalted, by these changes, realized so rapidly as to suggest the wave of a magician's wand rather than the slow evolution of municipal progress. But there is a theatrical element about this that fails to satisfy the scientific mind. The worse consequence, however, was the spread of Haussmannization to provincial towns, and especially to health resorts. For instance, at such towns as Cannes, Nice, etc., the public money was freely spent to cut broad boulevards, to raise handsome theatres and casinos, but the sewers were left in a deplorable condition, and domestic drainage utterly neglected. To the credit of the Third Republic it must be acknowledged that more interest is now taken in real sanitary improvements and less is expended on mere external show. Nevertheless, and in spite of all and numerous criticisms to which Baron Haussmann exposed himself, he gave an immense impetus to the cause of municipal progress. All the errors, the extravagances committed, the political motives that may have inspired some of the improvements initiated by Baron Haussmann, will not suffice to efface the glorious record of great works achieved by the late Imperialist Prefect of the Seine.—*Lancet.*

PROGRESS OF CREMATION IN ENGLAND.

The Cremation Society of England has now existed seventeen years. The crematorium and the building at Woking have been thoroughly tested, and are in every respect efficient and commodious. The appearance they present to the eye—a combination of early Gothic architecture, extremely well executed, surrounded by beautiful trees and shrubs—is, especially in summer time, picturesque and pleasing. During the past year no fewer than fifty-four bodies have been cremated. Among them may be named the late James Nasmyth, the distinguished engineer, a generous supporter of the Society; the well-known Rev. J. MacNaught, of Liverpool; and the late Baron Huddleston, on which last occasion the service, performed in the Society's chapel by the Rector of Ascot, was attended by a distinguished assembly of relatives and friends. The Society is earnestly asking for support to complete their plan of erecting cloisters for the reception of cinerary urns. For this, and also for the purpose of promoting the interest of cremation, by publishing, lecturing, etc., the Council of the Society earnestly appeals to the public for donations and annual subscriptions. It may be as well to add that a payment of ten guineas constitutes the donor a member for life, and entitles him to be cremated without charge after death. Since the beginning of the present year, 1891, the remains of Kinglake, the historian, and of his Grace the Duke of Bedford, K.G., have been cremated. —*British Medical Journal.*

DR. KOCH.

Dr. Koch is 47 years old. After graduating at the University of Gottingen, he commenced practice in a little village near Hanover, but failed to make a living. He then tried Rackwitz, a small malarious town in Prussian Poland, with no better results. Finally he settled in Wollstein, and in 1880 attracted much attention by his analyses and medical testimony in the famous Speichert poisoning case. In 1882 he discovered the bacillus of tuberculosis, and in 1883 the germ of cholera while acting as the head of the medical commission sent by the German Government to Egypt and India to study the causes and prevention of cholera. On his return to Germany he received an honorarium of 100,000 marks, the rank of Privy Councillor, and the Rectorship of the Imperial Institute of Hygiene.

DEATH AFTER INOCULATION FOR LUPUS

Dr. Janisch reports in the *Wiener klinische Wochenschrift*, No. 50, a case of death in a girl of 17, after a single injection of two milligrams of Koch's lymph. Local reaction had been very prompt. The injection was made at nine o'clock in the morning, and by three in the afternoon the region of the affected portion of the face was swollen, turgescent, and surrounded by a bright red inflammatory zone of the width of the finger. The upper lip was livid. These local manifestations became more pronounced, and by the next morning the swelling had become more diffuse. The bright red had given place to a livid color, and in many places yellow crusts were noticeable. Dyspnœa came on, weakness of the heart, and death on the same evening, thirty-six hours after the injection.—*Medical Record.*

PRACTICAL NOTES.

CURE FOR MORPHINISM.

W. I. Cottel during the past six years has had excellent success with the following formula: A mixture from which the patient is easily weaned, when the opiate is withdrawn (*Am. Pract.*).

Morphia sulphate or tincture of opium, q. s.
Fluid extract viburnum prunifolium, ½ oz.
Elixir of ammonium valerianate, 3 oz.
Elixir sodium bromide (5 grains to the dr.).
q. s. to make 6 oz.

Dose, a teaspoonful when required. In smell and taste this mixture is truly diabolical, and many patients are glad to give up the horrible stuff long before the opiate is entirely excluded.

EPILEPTIC MIXTURE.

℞ Potass. bromidi. } āā gr. x.
Sodii bromidi. }
Ammonii bromid., gr. x.
Sodii bicarb., gr. ij.
Liq. potassii arsenit., m. j.
Aquæ., ad. ʒj. ℳ.
S. Dose, ʒj.

—*Phar. Record.*

INHALATION IN WHOOPING COUGH.

℞ Thymolis, gr. xx.
Acid, carbolici,
Ol. sassafragis,
Ol. eucalypti } āā, f ʒ ij.
Picis liquidæ
Ol. terebinthinæ
Aetheris, f ʒ iv.
Alcoholis, q. s. ad. f ʒ iij. ℳ.

Put about 30 drops upon a pad of such a size as to be conveniently hung around the child's neck, renewing the application every two or three hours.

In severe cases the inhalation treatment is supplemented by the internal administration of

℞ Acid, carbolici grs. iij.
Sodii bromidi gr. i.
Tinct. belladonnæ gtt. xx.
Glycerini, f ʒ iij.
Aquæ, q. s. ad. f ʒ ij. ℳ.

Sig. Teaspoonful for a child, 3 or 4 years of age, occasionally.

—Dr. Beall, *Daniel's Med. Jour.*

BISMUTH TREATMENT FOR BURNS.

Dr. Bardeleben, of Berlin, recommends (*Therapeutic Gazette*, November, 1890), the following treatment based on an extensive experience: Wash the burn with a 2 or 3 per cent. solution of carbolic acid, or a 3 in 1,000 solution of salicylic acid. A little later open the blisters and cover the entire surface with bismuth subnitrate in very fine powder, and over this a thin layer of absorbent cotton. Renew the dressing as often as needed, which means to keep the parts dry and free from the discharges of the wound. If the burn is very extensive, an ointment of bismuth is sometimes substituted for the powder.

ECZEMA.

℞ Zinci oxidi, 1 ounce.
Glycerinæ, 2 ounces.
Mucilag. acaciæ, āā, 2 ounces. ℳ.

In extensive patches of eczema this paste is very agreeable. If itching is severe 1 per cent. of carbolic acid may be added.

—*Courier of Medicine.*

AN OINTMENT FOR CARBUNCLE.

℞ Ichthyol, 1 drachm.
Camphorated lard, ½ ounce. ℳ.

This salve is to be applied three times a day around the inflamed area, and if the surface has become broken the tissues are to be touched with nitrate of silver. It is said that the ichthyol diminishes pain, favors the resolution of the swelling, and aids in cicatrization.—*Medical News.*

PEROXIDE OF HYDROGEN IN CUTANEOUS THERAPEUTICS.

Unna is quoted by the *Canadian Pharmaceutical Journal*, as recommending the treatment of comedones by the following prescription:

℞ Sol. hydrogen peroxide
Vaseline, of each 2 ounces.
Lanolin, 1 ounce.
Acetic acid, 1 drachm.
Mix thoroughly and perfume as desired.

DELIRIUM TREMENS MIXTURE.

℞ Potass. bromid. } āā gr. xv.
Sodii bromid. }
Chloral. hydrat., gr. x.
Tinct. zingiberis, m. x.
Tinct. capsici, m. v.
Sp. ammonii arom., ʒ j.
Aquæ, q. s. ad. ʒ ij. ℳ.
S. Dose, ʒ ij.

—*Phar. Record.*

VOMITING IN PREGNANCY.

℞ Bicarb. soda, grams 3.
Potassium bromide, grams 2.
Sodium bromide, grams 2.
Ammonium bromide, grams 1.
Syrup. aurantii carb., grams 30.
Aquæ distillatæ, grams 120. ℳ.
S. Tablespoonful every two hours until relieved.

—Dr. Wertheimer.

INDIGESTION WITH FLATULENCE.

℞ Bismuth subnit.
Sodium bicarb.
Sacch. alba.
Pulv. acacia.
Pulv. zinzebri, āā ʒij. ℳ.
S. Teaspoonful of the powder dissolved in a little water after eating.

SOCIETY PROCEEDINGS.

Gynecological Society of Boston.

The 215th regular meeting of the Gynecological Society of Boston was held at No. 19 Boylston Place, on Thursday, Oct. 9, 1890, at 4 o'clock P.M., with the President, W. SYMINGTON BROWN, M.D., in the Chair.

Thomas P. Jefferson, M.D., of Lowell, Mass., was elected to active membership.

Joseph Eastman, M.D., of Indianapolis, Ind., was elected to corresponding membership.

DR. HENRY O. MARCY read a paper entitled

IN WHAT CLASS OF WOUNDS SHALL WE USE DRAINAGE? AND THE PRESENT POSITION OF ANTISEPTIC SURGERY.

(See page 229.)

DR. FRANK L. BURT said it is very evident that whether we drain or not depends altogether on the case. We cannot treat all cases after the same method, yet it is desirable that we find as good a method as possible and use it till we find one decidedly better. There is no doubt that many cases are drained which should rather be curetted thoroughly, so as to remove all diseased tissue and the surfaces be brought together by subcutaneous suturing so as to get healing by first intention. Tissue around a fistulous tract should be removed and treated in this manner. Some abscesses, fistulas, tumors of the breast, operations on hernia, etc., can be treated in this way without drainage. Care should be taken against too much tension on the skin and draining the sutures so tight as to strangulate the tissues. Oozing of blood underneath the skin does not need to be removed by drainage if it is from a surface which is aseptic. It is not always necessary to provide for clots of blood by drainage as, if aseptic, they need not cause sepsis and may organize or be absorbed. Many who formerly used three or four tubes in breast cases now use only one. In my later cases I have used no drainage and have been better satisfied with the results. I advise closure of the surface entirely as I have described before. In abdominal surgery we will find that some cases require drainage while others do not. Some surgeons do not drain at present as often and in such cases as in the past.

If there are many adhesions giving rise to a considerable oozing, drainage may be necessary. Also bad cases of pyosalpinx or abdominal abscess may cause the operator to feel easier if drained. If blood oozes into the abdominal cavity or pus enters it, as thorough a removal as possible by means of absorption had better be done first.

There are cases which seem to require flushing with hot water. In case this is done, care should be taken lest some of the pus or débris which is localized should be washed up among coils of intestines causing mere points of sepsis. When there is pus or much blood so that flushing is required, drainage had better be used. Glass or rubber tubes are serviceable. The fluid which accumulates should be removed frequently by absorption, cotton on a wire being introduced into the tube, or if a rubber tube is used, which seems to me preferable, the contents can be sucked up with a syringe.

It may be supposed that the abdominal wounds would require drainage as much as any, but if closed properly, the method of suturing in layers with animal ligature being the best, no drain is necessary and the surfaces adhere perfectly. It is very evident that a great advance has been made of late in respect to this subject of drainage.

DR. CHAS. K. CUTTER, of Charlestown, a guest of the society, said that in his opinion, locality has a great influence on the presence of germs, *e.g.*, in the poorer quarters of the cities wounds do not do as well as in the country where there is less dust and other material floating about in the air. Although he regards cleanliness as an essential feature, he could not help recalling operations in which he had formerly assisted a Charlestown physician who had sometimes opened the abdominal cavity without even taking the natural precautions of washing his hands and no antiseptics were used. He remembered one operation in which four assisting physicians had successively introduced their fingers into the wound to establish a diagnosis and the patient recovered. He always uses drainage after opening a mammary abscess. He referred to the remarkable antiseptic properties of Merck's new substance, pyoktanin, and spoke of several instances in which he had seen it successfully applied.

DR. GEO. W. JONES said that he had been much interested in the paper, and that he agreed with the ideas of Dr. Marcy on the matter of drainage as expressed therein.

DR. A. L. NORRIS said that he had of late used drainage very little indeed, and if he has had recourse to any thing he has used for this purpose a few strands of catgut ligature. He referred to the operations which he had seen Mr. Tait perform in Berlin.

DR. C. E. PRIOR said that he had watched with much interest the wordy war which has been waged over antiseptics. He believes that the followers of both Tait and Lister are on the same ground however much they may seem to differ. Both cleanliness and excellent surgical skill are essential to good results.

DR. JAMES P. ELLIOTT believes that both cleanliness and good judgment are necessary to obtain union by first intention.

DR. C. W. STEVENS thinks that the statement

that all abscesses should be drained is too broad. Large ones should be drained, but small ones should not. It is possible to withdraw the pus by means of a hypodermic needle, after which the cavity can be washed out with a solution of corrosive sublimate, 1 to 4000, and then with iodoform emulsion.

DR. A. E. MCDONALD recently treated two abscesses on the same child. The one treated with drainage did better than the one treated without drainage.

DR. H. C. WHITE said that Dr. Marcy gives his opinions boldly and clearly, and that his success in treating wounds is due to the same boldness and clearness, as exampled by the closure layer by layer, even the edges of the skin being accurately approximated. There can hardly be hæmorrhage possible when the operation is done in this way. Perfect coaptation just tight enough and not too tight is important. The discussion between Tait and Lister is now chiefly of words and not of opinions. Both believe in clean aseptic wounds. Marcy has made advances and got ahead of his teacher, Mr. Lister.

DR. W. S. BROWN said that Sir Joseph Lister's modesty and thorough honesty is admirable.

DR. MARCY in closing the discussion said that he had seen much of these men (Tait and Lister) during the past summer, They have agreed to disagree. Tait has fought every one who has disagreed with him. Dr. M. believes that Tait is now broadening in spirit.

PATHOLOGICAL SPECIMENS.

DR. BURT presented a specimen of double ovarian tumors. The case was of special interest because of the difficulty of diagnosis. It had been considered for several months as a case of version which did not improve under treatment by means of applications, tampons, pessaries, etc. The uterus was found rather high up, toward the right and forward. The left ovary could be outlined, enlarged to the size of an egg, and somewhat prolapsed. No ovary could be detected on the right side. A mass, the size of a fœtal head, was found behind, below and to the left of the uterus, seeming to be in the left broad ligament. This large mass was the right ovary with cyst, which, being displaced had become adherent so as to appear to be on the left side. The relief after operation was as usually experienced in such cases.

DR. IGNACIO MARTINEZ, of Laredo, Texas, at one time a general in the Mexican Army, a political exile, a great traveler and an author of ability, while making the rounds among his patients on the morning of February 3, was waylaid by two mounted men near the Mexican National Depot and shot to death. The assassins, supposed to have come from Mexico, escaped.

SPECIAL CORRESPONDENCE.

Hypnotism—Facts and Reports of Cases in the Early Experience of one of its Former Practitioners.

To the Editor:—Several articles have of late appeared in THE JOURNAL upon hypnotism, and there seems to be a general interest among the profession upon this subject. Though a permanent member of the American Medical Association for many years, and an attentive reader of every number of THE JOURNAL, I have never contributed anything to its columns. I come forward now and offer this communication with great reluctance and only because I deem it a duty to my professional brethren, to give them some benefit of my investigations and experience in the therapeutic application of this potent and subtle agent.

In the year 1841, while an under graduate and a hospital attendant, in the ward where I was employed one of the patients was a sea captain, whose home was in an obscure New England town. This captain conceived a strong attachment for me, and when ready to leave for home, insisted that I should accompany him. Being weary with several months' close confinement, I obtained leave of absence and went. Once there, he dubbed me "Doctor" and introduced me as such to his neighbors and some three or four practicing physicians in his own and surrounding hamlets.

I was soon called upon to treat the sick and was compelled to engage in practice, or to ignominiously desert my friend and forego his hospitality. I chose the former. This I did by the advice and promised aid of one of the most skilful and popular physicians in that neighborhood.

This physician, in addition to the usual drug treatment, practiced hypnotism, or as it was then called, mesmerism, or animal magnetism. Becoming close friends, we spent much time together, visiting patients and receiving and imparting information. One of the most fruitful subjects of our discussion was animal magnetism, and he finally persuaded me to engage in experimental examination of it.

By his instructions and assistance, I was soon not only practicing medicine but mesmerism as well. For five years that followed I was one of the most industrious practitioners of the healing art in that section of the country. Then, my trusted friend, teacher, and confederate suddenly departed between two days, leaving a wife and children unprovided for, but taking with him one of his female mesmeric subjects. This occurrence was an overwhelming blow to me, and gathering up my available means departed; attended medical college, graduated and wended my way westward, and have since pursued the regular practice of medicine. Since that time I have never publically practiced, or advocated hypnotism under any of its aspects or names.

This narrative seems a necessary introduction to what I wish to contribute for the benefit of those who are interested in, and are now investigating modern hypnotism.

Had I made and preserved full notes of all the cases I treated by this agent, in those five fruitful years, I would be able now to give many interestiug and instructive facts and cases that, in the lapse of nearly half a century, have either entirely faded from my memory, or become so much obscured as to render an accurate account of them now impossible. Many of these cases, their treatment and the results are, however, indelibly impressed upon my memory; and from these I can bring a sufficient variety and number to illustrate the more important and prominent qualities of therapeutical hypnotism.

Case 1.—During the prevalence of an epidemic of malignant dysentery, a lad of 9 years of age affected with

this malady had been given up as incurable by physician and family and not expected to survive the ensuing night. The boy insisted that I should be called, and on reaching his bedside and making a careful examination, I told him if he could yield to me and sleep, I thought he would recover. Placing one hand on his abdomen and the other on his head, I exerted all my will power in the effort to hypnotize him. The tormina soon grew less, restlessness abated and in half an hour he was hypnotized. I sat by his bed and kept him asleep for six hours. On awaking a bilious evacuation followed, with neither blood nor mucus. I then again hypnotized him and kept him asleep the whole night. He awoke in the morning more decidedly convalescent, rapidly recovered with no medication, except some placebos and proper diet, and is living to-day, a man of wealth an influence in both Church and State.

Case 2.—A young lady, about 19 years of age, had been under treatment for more than a year, by two good physicians, and was considered incurable. Her disease was a very severe case of bronchitis, thought to be of tubercle origin and her lungs already involved. She coughed almost incessantly while awake and did not sleep to exceed thirty minutes at a time, on this account; was expectorating freely and rapidly emaciating. At this stage of her case I was called in to make a trial of hypnotism. After a few sittings she was profoundly hypnotized—the constant cough and expectoration greatly interfering in its accomplishment. I kept her asleep some two hours at first, during which there was neither cough or expectoration. Gave her daily sittings gradually prolonging the period of sleep, then leaving her in that condition with instructions to wake at a certain time, which she always did. Then I changed the sittings to the hour of bedtime and told her to sleep till morning. While this treatment was progressing there was a constant daily improvement in all her symptoms. At length she was so much under control that she would obey me by falling asleep at a future hour and remaining in it as long as directed. Finally she would fall asleep and wake on specified times, each day, for three days in succession, without being visited, which greatly lightened my labors. In less than three months a perfect cure was effected in this aggravated case, without any medication; and I may add that more than thirty years afterward I saw this patient with husband and grown children, a perfect picture of health, and was assured by her that she had not in all these years suffered from any disease whatever.

Case 3.—A middle aged man, far advanced in pulmonary tuberculosis, applied to me for hypnotic treatment. On examination I told him there was no cure known for his case. He replied that he was fully aware of that, but from what he had learned, thought his condition and sufferings might be ameliorated by hypnotism. I found him an easy subject and hypnotized him daily for several weeks, and every sitting improved his condition. The small hæmorrhages, of which he had had many at short intervals, ceased. The amount of pus expectorated decreased; night sweats and diarrhœa disappeared; digestion improved and he materially increased in flesh and strength. I found the treatment of this case very exhausting to me and a severe drain upon my vitality. I lost flesh and strength and other symptoms alarmed me and caused me to suspend my hypnotic efforts in his behalf. With some medication, he went on improving for a time, and he thought he was recovering. Several months afterwards, while fishing in a skiff, he hooked a very large one, and in the effort to capture it a violent hæmorrhage came on and he died before his companion could pull the craft to land.

Case 4.—A married woman, about 30 years of age, after a long seige of house-cleaning, received a severe mental shock. She was seized with a sudden and severe chill followed by fever and delirium. The next day she was violent and unmanageable and I was called. It was then a case of acute mania. I had hypnotized her some years before, and after a persistent effort finally engaged her attention and soon had her under hypnotic influence, in which condition she was put to bed and kept in it under observation for fifteen hours; all this time remaining perfectly quiet. Her temperature, pulse and respirations gradually returned to normal. Before awakening she was told and impressed that she must take absolute rest for a week, and only think of the painful occurrence that gave her the shock as something that happened long ago. After she awoke she remained quiet and self-possessed, and made a speedy and complete recovery without any medication.

Other cases might be given, but these will suffice for the present.

This narrative and report of cases are but an introduction or preface to the subject, as it appears to me. The field opens broad and fruitful and will amply repay the careful and thorough explorer. If those members of the profession who are interested in this subject desire it, more may be said, in which the principles, modes of application, the possibilities of its therapeutic employment, and the moral and physical responsibilities resting upon those who would practice it, will be discussed.

M. F. BASSETT, M.D.

Quincy, Ill.

Chromic Acid Treatment of Chronic Enlargements of the Tonsils.

To the Editor:—Miss G. M., æt. 17, very small in stature, been delicate for several years. Tonsils very large, caused breathing through the mouth nearly entirely. They pressed against each other closely. Made a puncture with a small bistoury in one tonsil, then with a regular acid probe I heated or melted chromic acid crystals over a gas jet, until I had a nice smooth ball about the size of a small pea, which I carried into the punctured tonsil. Letting it remain a very short time after taking the probe out, I took up all excess of acid about the tonsil with absorbent cotton. The third day the patient presented herself with a large, deep slough from the centre of tonsil. After that healed I repeated the operation in the other tonsil, and continued until I had reduced them three-fourths their size. I have used this remedy in six or eight equally severe cases, and with equally good results. Let us know if others have had a like experience. Mine were cases where the patients would not submit to excision. As there was no pain with this mode of treatment, it may commend itself to others where surgical procedure is denied.

F. E. YOAKUM, M.D.

Shreveport, La.

Shall The Journal be Removed to Washington?

THE ACTION OF THE CHICAGO MEDICAL SOCIETY.

To the Editor:—At the January 19 meeting of the Chicago Medical Society a committee was appointed to consider the matter of removing THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION from its present location. After considering the matter the committee reported at the February 2 meeting and recommended the passage of the following resolutions, which were unanimously adopted:

Resolved, That the Chicago Medical Society as a body is opposed to the removal of THE ASSOCIATION JOURNAL, deeming that such change is unnecessary, at the present time, and contrary to the best interests of THE JOURNAL and the Asssociation, and be it

Resolved, That the delegates from this Society to the forthcoming meeting of the American Medical Association, be and are hereby instructed to oppose such removal, and be it further

Resolved, That the committee appointed at the last meeting be continued to take such action as they deem wise, in furthering the object of this resolution, also that a copy of these resolutions be spread upon the records, and transmitted to the medical press of the country.

J. C. HOAG, M.D., Sec'y.

Chicago, Feb. 6, 1891.

To the Editor:—I am of the opinion that there is no good reason for moving THE JOURNAL office. I think Chicago is the most suitable place for it. I vote for it to remain in Chicago, for that to be its permanent home.

H. H. DARR, M.D.

Caldwell, Texas, Jan. 30, 1891.

To the Editor:—I prefer to see THE JOURNAL continue its publication in Chicago. Besides the superior facilities of communication with all parts of the country, the ambition to excel all competing cities in laudable enterprises that give prosperity to a city, which prevails there, may sharpen editorial energy to make it the best medical journal in the world. WM. LOMAX, M.D.

Marion, Ind., Feb. 2, 1891.

To the Editor:—I prefer Chicago as the location and home of our journal for one good reason, in addition to the many others already stated by numerous correspondents. I believe the Eastern members of our profession are tainted with heretical opinions as to the propriety and practicability of our "Code of Medical Ethics" as a guide to the highest honor and truest success of the profession. Witness the heterodoxy through which we have only recently passed and fresh in the minds of all.

This reflection is not meant to impugn the characters of Eastern members generally—simply as a statement of a deplorable fact, as to a few in high places.

GUSTAVUS S. FRANKLIN, A.M., M.D.

Chillicothe, O., Feb. 3, 1891.

To the Editor:—Though living in the East and wishing it to prosper; yet I wish to be understood as advocating Chicago as the place for THE JOURNAL. 1. Because of its central location. 2. Because it is a great medical centre. 3. Because the next decade will witness it the largest city in America. 4. Because THE JOURNAL is ably edited in Chicago and is prosperous, not political nor prejudicial to sections. C. G. CANNADAY, M.D.

23 Salem ave., Roanoke, Va., Feb. 3, 1891.

To the Editor:—I do not think the time has come, or in fact, ever will come, when our journal should be removed from Chicago. This child of our creation was born under trying circumstances, and I hope it has passed all the straits of its birth, and now at an age well on its feet, walking alone. Chicago, I believe, should be its home. THOMAS H. BRIGGS, M.D.

Battle Creek, Mich., Feb. 5, 1891.

To the Editor:—In the absence of any sufficient reason for changing the publication office of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION from Chicago to Washington, I wish to record my vote in favor of its present location. J. W. FERGUSON, M.D.

Canaan, O., Feb. 7, 1891.

To the Editor:—I am greatly surprised at the letter of Dr. Solis-Cohen in THE JOURNAL of January 31. I admit that THE JOURNAL has not reached the standard of excellence which the profession have a right to expect. I am, however, satisfied that "sectional prejudice" and personal ambition in Philadelphia, New York and Washington, have had not a little to do with this lowering of the standard. Dr. Solis-Cohen makes the assertion that the removal to Washington would overcome all the present difficulties.

Washington is not, and cannot be a centre for this country. Even the political conventions are not held there, and the only thing that preserves it as the National Capital is the amount of money expended in permanent government improvements.

Perhaps THE JOURNAL would not in Washington be debased to a "local" organ, but what assurance would we have that it would not be practically debased to the uses of some one service of the government. For example: With the official organ of the profession under control how easily might a Marine-Hospital surgeon annihilate a National Board of Health. For one I prefer a "local" medical journal to the tool of a political ring.

I am opposed to removal of THE JOURNAL:

1. Because such removal of plant would be expensive.
2. Because such removal would result in loss of advertising patronage.
3. Because there is not the slightest assurance that such removal would improve the personnel of the editorial board.
4. Because such removal would not increase facilities for good work.
5. Because such removal would cause loss of subscribers.
6. Because such removal would make THE JOURNAL a local journal, out of sympathy with the profession of the country.

The East has three good medical weeklies, the *Medical News*, the *New York Medical Journal*, and the *Medical Record*. The West has none. The removal of THE JOURNAL to Washington would immediately result in the establishment of a high grade Chicago weekly, which would largely decrease the advertising and subscription patronage of THE JOURNAL.

Permit me to suggest that THE JOURNAL would be more improved by having an editor for each Section of the Association, than by its removal. These sectional editors should take turn in getting out successive numbers of THE JOURNAL, under the supervision of the Editor-in-Chief, until the work of the meeting is finished, and thereafter these sectional editors should have supervision of papers in their special departments. If, for example, at a sectional meeting there are five papers read on peritonitis, publish them together, *followed by discussion*, as is done in the *British Medical Journal*.

HENRY B. HEMENWAY, M.D.

Evanston, Ill., Feb. 9, 1891.

To the Editor:—I am profoundly opposed to the removal of THE JOURNAL. Chicago is central and has talent to edit the same as well as Washington, Boston or New York. A. G. PORTER, M.D.

Lebanon, Ind., Feb. 9, 1891.

To the Editor:—As a member of the A. M. A. I am decidedly opposed to the removal of THE JOURNAL to Washington, or to any other point at present. I am also opposed to locating our annual meeting at any one point. By all means let the Association remain National in character, and let it itinerate, gathering new members from all parts of our country. To permanently locate the annual meeting somewhere in the East or South, would be practically inviting our brethren on the Pacific slope to withdraw, which they would probably do.

I vote to let THE JOURNAL remain in Chicago until after the Columbian exposition at least, and let special inducements be offered all visiting physicians in good standing to visit the editor and subscribe for THE JOURNAL.

I have no fault to find with the present, or past, management of THE JOURNAL. C. N. UDELL, M.D.

Blakesburg, Iowa, Feb. 9, 1891.

To the Editor:—The fact that Washington City, with all her macroscopic advantages, has never produced a medical journal "National" either in character or reputation, is the very reason why she is just the place which *can* do it. Every process attending the production of a journal, composing, printing, sewing, etc., is directly

the result of bacterial action on the part of germs which are indigenous to certain typographical and other trades unions. Likewise towns are permeated and dominated by microörganisms which determine the character of their habitat—*e. g.*, Chicago money is infested by microbes which stimulate commercial activity, while the New York microbe inhibits the building of monuments, etc. The patent fact that for seven and one-half years THE JOURNAL has succeeded measurably in Chicago is the very reason why it cannot succeed there; because the entire environment is now reeking with these ptomaines produced by these provincial and "wild and wooley" microbes, the alkaloidal intoxicants, resulting from past editorial and business management, as it were, and even though the Trustees may succeed, that success is only clinical, and flies directly in the face of all scientific prognosis.

This may not be perfectly clear to some, but remember, Mr. Editor, this is a contribution to current bacteriology and must be made to harmonize with all past contradictory investigations as well as to anticipate all future discoveries. No man knows what discovery he may desire to claim before another moon wanes. Now, Washington City is aseptic, is free from Nationalmedicaljournalism, and if a bran new publication plant—sterilized—be set up in properly disinfected quarters, and the management be inoculated with a lymph derived from only the worst features of the most provincial medical journals until they cease to show reaction under the treatment, I think success would be assured. I fear but one thing; infection by the pathogenic germ of the *Congressional Globe*. Doubtless some such idea as this actuated Dr. S. Solis-Cohen, for he certainly would not be guilty of an *ad captandum* argument.

Seriously, but two considerations should weigh in answering the question of removal: the success, financial and otherwise, of THE JOURNAL, and the preference of a majority of its owners.

In their report made at the Nashville meeting the Publication Board, composed of nine eminent gentlemen representing the country from Maine to Arkansas, and including Washington City, stated that although they "have at different times invited competitive bids for its publication in other cities, but always with this uniform result, that it can be issued cheaper in Chicago than elsewhere."—THE JOURNAL, Vol. xiv, page 799.

Again, an editorial note in THE JOURNAL, Vol. xvi, page 204, states that of the total income of THE JOURNAL from all sources in the entire United States, "*one-seventh of that amount comes from Chicago alone.*" A comparison between the two cities in this respect would be unjust to both places. Probably in no other city could THE JOURNAL attain the relative business success it has in Chicago, because of competition already occupying the field elsewhere.

The claim that leader writing cannot be done as well and as easily under one set of circumstances as under the other does not deserve serious consideration. European exchanges reach Chicago less than eighteen hours later than their arrival at Washington.

Personally, I would like to see more clinical matter printed; more abstracts from foreign periodicals, and this work can be printed as well one place as another, while Chicago certainly offers a fine field for an active clinical reporter.

As long as it represents a volume of Transactions THE JOURNAL will have unsatisfactory features. Just as the Quakers often suffer because of a mistaken "concern" on the part of some self-"called" speaker, so will the Association listen to papers which might have been burned without irreparable loss to the profession, and THE JOURNAL must print a certain proportion of such. Change of publication office will not cure this evil.

Whe own THE JOURNAL, and who should vote on a proposition to remove it farther east? Divide the country by giving Washington all the Eastern States and the Southern States as far West as the Mississippi and let us study the matter statistically. In the List of Permanent Members, published in No. 26 of Vol. xv, I take at random first column on pages 929, 930, and 931, and, lest some peculiarity lie in the alphabetical arrangement, the first column on page 940, making a total of 400 names. With these as a basis for an estimate I find that of the total present membership of the Association, 12 per cent. are men from the Eastern and Southern States who were in the Association when THE JOURNAL was started, while of Western men whose admission antedates that time, there are 18½ per cent. The West certainly assisted at the *accouchement*. Of the total membership, 21¼ per cent. of Eastern and Southern men have joined since THE JOURNAL'S birth, while during the same time 48¼ per cent. of Western men have come in. Total Eastern and Southern members 33¼ per cent., of Western members 66¾ per cent. Of contributors to Vol. xv, from the two sections of country, there were respectively 66 and 78. Whether it be regarded as a local or a National publication, THE JOURNAL may properly be regarded as the organ of an Association which is largely tributary to Chicago, and no change can justly be made on a vote taken at Washington in May. Let us have the postal card vote by all means.

CHAS. A. HOUGH, M.D.

Lebanon, Ohio, Feb. 7, 1891.

To the Editor:—Now that the question of changing the location of THE JOURNAL is under consideration, it is important that no time be lost in plainly laying before our readers and members the reasons why its removal should be demanded, and there is no place or no medium through which the matter can be better, fairer or more fully considered, than in that weekly, which is the property of us all; for it may as well be generally known that this transference of location cannot be consummated *except through specious, delusive argument, wily manipulating and shrewd diplomacy, with the aid of sharp parliamentary tactics;* in other words, by a genuine *coup d'état*. Our membership is bound by no alliances, can afford to act independently, and must be prepared to meet and neutralize by a compact and concentrated majority.

So far I have not seen a *single valid reason* why we should move East; on the other hand, the indications point the other way; that if another location is selected, it must be in the direction of the Occident, for the bone and muscle—so to speak—and the brain, too, of the American Medical Association, come from the West.

True, we have at the present time greater literary centres east of the Alleghanies; more books and professors. So with the "late unpleasantness"—the South had the generals and the gentlemen, but the North had the men and money.

To-day, the West has the natural wealth, with an enormous and rapidly multiplying population, and the time has now arrived, in medicine as in politics, when the voice of that section must be respected in our councils.

It has been intimated that ours is a sort of a third-rate journal; indifferently edited and behind the times. Now, the contrary is incontestably the fact. Subscribing for nearly all our leading medical weeklies, there is not one which I read with greater relish and profit than THE JOURNAL. What should particularly commend it to us, is that it is *out and out American*. Its pages are not stuffed and padded with abstracts from other exchanges, which have often nothing to justify their appearance, except because they "are foreign, you know."

The pages of our journal are open to the best American thought; to the humble plodder, as well as to the more pretentious professor. Its present status is one of prosperity, its future, conducted on the same lines, is unquestionably one of unparalleled success.

Let us, then, *stand together, regardless of section, and*

insist on no removal from Chicago; a city for its size and importance, the most centrally located and accessible in the United States.

Let those satisfied with the present *régime*, and its publishing centre, MOVE EARLY, and see to it that their friends are in their places at the next meeting of the Association in Washington, D. C., to maintain their position and cast their ballots.

THOMAS H. MANLEY, M.D.

New York, February 9, 1891.

ASSOCIATION NEWS.

American Medical Association.

The forty-second annual session will be held in Washington, D. C., on Tuesday, Wednesday, Thursday and Friday, May 5, 6, 7 and 8, commencing on Tuesday at 11 A.M.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies *as are recognized by representation in their respective State Societies*, and from the Medical Department of the Army and Navy, and the Marine-Hospital Service of the United States.

"Each State, County, and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *Provided*, however, that the number of delegates for any particular State, territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

Members by Application.—Members by Application shall consist of such Members of the State, County, and District Medical Societies entitled to representation in this Association as shall make application in writing to the Treasurer, and accompany said application with a certificate of good standing, signed by the President and Secretary of the Society of which they are members, and the amount of the annual membership fee, five dollars. They shall have their names upon the roll, and have all the rights and privileges accorded to *permanent members*, and shall retain their membership upon the same terms.

The following resolution was adopted at the session of 1888:

That in future each delegate or permanent member shall, when he registers, also record the name of the Section, if any, that he will attend, and in which he will cast his vote for Section officers.

Secretaries of Medical Societies, as above designated, are earnestly requested to forward, *at once*, lists of their delegates.

Also, that the Permanent Secretary may be enabled to erase from the roll the names of those who have forfeited their membership, the Secretaries *are, by special resolution*, requested to send him, annually, a corrected list of the membership of their respective societies.

AMENDMENTS TO THE BY-LAWS.

Offered by Dr. A. L. Gihon, United States Navy:

That the first day of the meeting of this Association shall be the first Wednesday of May or June respectively, instead of Tuesday.

By Dr. X. C. Scott, Ohio:

That the Committee on State Medicine be abolished, inasmuch as the Section on State Medicine occupies the entire ground.

By Dr. E. A. Wood, Penn.:

That the word Physiology be stricken from Section 1, and a new Section, entitled the Section on Dietetics and Physiology, be formed.

By Dr. J. C. Culbertson, Ohio:

That the State and Geographical District Societies in affiliation at this time with this Association, having a membership of 100 or more, shall be recognized as branches of the American Medical Association.

That all members of said Societies enjoy all the rights and privileges now accorded to delegates.

By Dr. Wm. H. Daly, Penn.:

That in future the permanent members have all the rights of delegates.

ADDRESSES.

On General Medicine, by Dr. E. L. Shurly, Detroit, Mich.

On General Surgery, by Dr. Jos. M. Mathews, Louisville, Ky.

On State Medicine, by Dr. W. L. Schenck, Topeka, Kan

Committee on Arrangements: Dr. D. C. Patterson, Chairman, 919 I street, N. W., Washington, D. C. WILLIAM B. ATKINSON, M.D.

Permanent Secretary.

BOOK REVIEWS.

PRINCIPLES OF SURGERY. By N. SENN, M.D., Ph.D., Milwaukee, Wis. Illustrated with 109 wood engravings. Philadelphia and London: F. A. Davis, publisher. 1890.

Principles of surgery, surgical pathology and general surgery are synonymous terms. This is the soul, the brain, of the science of surgery. It is the red thread that runs through the surgeon's every action, and leads and guides him in diagnosis, in prognosis, and in treatment as well. It lays down broad general laws and truths, which are the same everywhere, in any number of details of a given case.

Special surgery is a conglomerate mass of details, of anatomy, technique of operating and varied forms of special diseases in special regions. It is impossible for any surgeon to remember and know by heart all of these at one time. Thus,

he has his books in which to find the detailed description of a disease or operation when he meets a case requiring this special knowledge.

General surgery, on the other hand,—the broad general laws of Nature,—the student, the practitioner, the surgeon, must have ever present in his memory. It must be a part of his every-day thought and reasoning. He must know the general laws by heart, because he has to use them in his every-day work. The principles of surgery is the most important part of the science of surgery.

Since the appearance of Billroth's "Surgical Pathology," twenty years ago, no book has appeared covering this special field.

Too little space is devoted to general surgery in the modern textbooks, Tillmanns, Fischer and others. Koenig's otherwise excellent work is too old as regards this branch of the subject, excepting Part II, published in 1889, written by Riedel, which is most excellent and entirely modern, but which covers only part of the field. Besides this, Koenig's Surgery is not as yet translated into English.

In the last twenty years general surgery has been revolutionized by the development of bacteriology and Lister's antiseptic method. Bacteriology has revolutionized pathology, which is now written in an entirely new language, incomprehensible to the readers of twenty years ago. New editions of Billroth's work have entirely failed to bring it up to date. The Lister method has revolutionized treatment just as much. Thus, the views of treatment even of as apparently simple an affection as a furuncle or felon have changed entirely, and so much the more in graver affections. The advice given in the general surgery of to-day is in many respects diametrically opposed to the advice of twenty years ago, and many a procedure, which at that time seemed hazardous or aggressive, is to-day not only legally permissible, but imperative, is the rational treatment, and adherence to the old conventional methods must be considered as neglect, and even as malpractice.

In the first chapter, on regeneration, the author draws a sharp line between this process and inflammation, defining regeneration as a formative process in contra-distinction to inflammation, a destructive one. In this chapter he takes strongly the ground of homology in cell development as opposed to the metaplasia of Virchow. I think this point is well taken in a text-book for students, in which it is important to have as distinct landmarks as possible, in order to facilitate comprehension.

The results of modern investigation in such processes as karyokinesis, vascularization, cicatrization and epidermization, are fully described, and lead to a number of practical remarks on the aseptic and antiseptic treatment of wounds, which are most important for the surgery of to day.

In the chapters on blood-vessels and fractures, the author speaks with the authority of an original investigator.

In the chapter on inflammation, the author holds that inflammation is always caused by one or more kinds of microbes, thus entering another field, where the previous valuable writings of the author make him perfectly at home. A careful consideration of the modern histology of all the tissues concerned in inflammation makes this chapter most important and interesting. The modern field of phagocytosis is ably considered, and the author believes that there is positive evidence of the potency of this process in limiting or combating infective invasions.

Chronic inflammation, the granulomata of old, which is always due to the action of specific microbes, is ably discussed in its various forms, and a comprehensive light shed upon the variety of course and symptoms, by a careful consideration of the mixed infections as the cause of abscess formation in these diseases. By inserting practical points in diagnosis and treatment where modern research has made it possible, this otherwise rather dry and uninteresting subject has been made much easier for the student, and very attractive.

In the chapter on the treatment of inflammation, the author is entirely modern, and does away, it is hoped for all time, with the legion of cataplasms and counter-irritants of times gone by, as well as with a number of useless drugs, which must give place to the healthy stimulants. Among these otherwise very critical considerations, I am surprised to find the author's unexpected faith in cold applications.

The important subject of pathogenic bacteria has received an exhaustive consideration, as would be expected from the author of the most complete monograph on surgical bacteriology, which, as it well deserves, has been already translated into several languages. The chapter is short, clear, and is not burdened by details. This is a difficult task, on account of the mass of literature now existing, and evidences just criticism in an author conversant with the whole literature of the subject.

The subject of necrosis in all its pathological and clinical varieties, is entirely modern, and has been made an exceedingly valuable chapter to the practitioner by elaborately detailed practical advice, given from cases of every-day occurrence. The descriptions are made such life-like pictures of cases that we meet with that any practitioner will recognize them when he reads them, and they will constitute for him a valuable guide in diagnosis and treatment, such as I have not yet found in any of the text-books on general surgery.

The subject of suppuration is probably the most important chapter in modern surgery. We find in this book a clear exposé of the intricate connection between the different forms of sepsis

and the different microbes, with their relations to etiology, clinical symptoms, and treatment. The landmarks in history also receive due consideration. The detailed advice for the treatment of each individual form, from the small localized felon up to the acute, rapidly progressing fatal sepsis, is exceedingly important to the practitioner.

In the chapter on osteo-myelitis, the author himself has made a valuable addition to the progress in modern treatment in the filling of bone cavities by antiseptic decalcified bone chips.

The chapter on intra-cranial suppuration is exceedingly interesting and practical, clear in differential diagnosis, exhaustive in advice, and founded on the manifold researches and observations in this modern field of surgery.

The author follows suppurative inflammations through all the tissues of the body, giving for each territory the results of modern research as to etiology and the modern operative methods as well.

The important subjects of septicæmia, pyæmia, and septico-pyæmia, almost incomprehensible as they are in all other works up to date, can be read in this work with great interest, as the author has been especially fortunate in drawing comprehensive lines and pointing out landmarks founded on modern investigation and leading to advice, also entirely modern, in the war against these diseases, which are, we might say, the most formidable enemies of the surgeon.

The chapter on surgical tuberculosis belongs exclusively to modern surgery. The rapid strides forward of the last one or two decades have revolutionized the diagnosis and treatment of this extensive field of surgery, which includes, we may say, the greatest number of every-day cases for operation. With the exception of Koenig and Riedel, who are not accessible to English readers, we find in this work the first exhaustive and comprehensive description of surgical tuberculosis, in all its varied forms and treatment. This is eminently practical also in this book, as the examples cited of tuberculosis of joints, glands, etc., are the typical ones of every-day surgery, and the operative treatment, as described, is so clear and exhaustive, that it is a safe guide for any operator.

The little chapter on fascial tuberculosis is entirely new, and is based on original observations of the author, which, so far as I know, have not before been published.

In a review it is impossible to do more than to point out here and there what strikes the reader most markedly. Thus, a multitude of subjects can receive no mention. In general, I will say that each subject has been discussed exhaustively. If we take at random one of the smaller subjects, as, for instance, actinomycosis, we find, as a proof of the comprehensiveness and completeness with which the subject has been treated, each of the following points distinctly discussed: History; description of microbe; cultivation experiments; inoculation experiments; sources of infection; pathology and morbid anatomy; clinical varieties, including cutaneous surfaces, alimentary canal, respiratory organs and brain; symptoms; diagnosis; prognosis and treatment.

As a teacher of surgery, I have for a long time felt the need of a work on general surgery short enough to be read by the student, complete enough and modern enough to bring the subject up to date. Such a work we have in the book before us. It has been written with just discrimination in the selection of the grains of gold in the enormous mass of the modern literature of the subject.

It is an important aid to the teacher, enabling him to do away with the tedious, didactic lecture, and the plowing through the enormous literature to find what the student of to-day needs. I, for one, intend to use the book as a text-book for the students to learn, using the lecture hour for quizing and demonstrations, supplemented by remarks on matters of interest in the current literature of the subject.

To the practitioner and surgeon this work brings the subject of modern surgery up to date, in a comprehensive form, and he will find it a valuable and safe guide in his everyday work in diagnosis, prognosis and treatment.

The illustrations are numerous, well chosen and well executed, and the publisher deserves credit for the appearance of the work.

CHR. FENGER.

MISCELLANY.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from January 18, 1891, to January 24, 1891.

Major William H. Gardner, Surgeon, is relieved from further duty in the field, and will return to his proper station. By direction of the Secretary of War. Par. 2, S. O. 19, A. G. O., Washington, January 23, 1891.

Major Stevens G. Cowdrey, Surgeon, extension of leave of absence on account of sickness granted in S. O. 302, December 27, 1890, from this office, is still further extended two months, on surgeon's certificate of disability. By direction of the Secretary of War. Par. 13, S. O. 19, A. G. O., Washington, January 23, 1891.

Capt. Walter Reed, Asst. Surgeon, is relieved from temporary duty at Ft. Keogh, Mont., to take effect as soon as his services can be spared by the commanding officer of that post, and will then return to Baltimore, Md., and resume his duties in that city as attending surgeon and examiner of recruits. By direction of the Secretary of War. Par. 3, S. O. 20, A. G. O., Washington, January 24, 1891.

Capt. William C. Owen, Jr., Asst. Surgeon, is relieved from temporary duty with troops in the field, to take effect as soon as his services can be spared, and will then return to Muskogee, Ind. Ter., and resume his leave of absence. By direction of the Secretary of War. Par. 3, S. O. 20, A. G. O., Washington, January 24, 1891.

Capt. Charles M. Gandy, Asst. Surgeon, is relieved from temporary duty in the field, to take effect when his services can be spared by the commanding officer of the troops with which he is serving, and will then return to Ocean View, Cape May Co., N. J., and resume his leave of absence. By direction of the Secretary of War. Par. 1, S. O. 21, A. G. O., Washington, January 26, 1891.

Capt. Robert J. Gibson, Asst. Surgeon, is relieved from further temporary duty in the field, to take effect as soon as his services can be spared by the officer commanding the troops with which he is serving, and will then return to New Haven, Conn., and resume his leave of absence. By direction of the Secretary of War. Par. 6, S. O. 22, A. G. O., Washington, January 27, 1891.

Capt. William Stephenson, Asst. Surgeon, will proceed without delay from Columbus Bks., O., to Ft. Wayne, Mich., and report in person to the commanding officer of that post for temporary duty, and upon completion thereof will return to his proper station. By direction of the Secretary of War. Par. 13, S. O. 23, A. G. O., Washington, January 28, 1891.